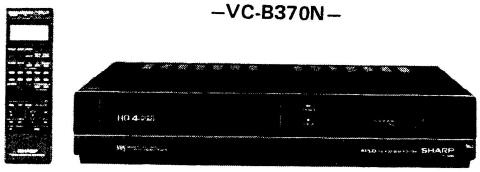
VC-B370N
VC-A505W

SHARP SERVICE MANUAL

S08K8VC-B370N

–VC-B370N–



–VC-A505W–

VHS VIDEO CASSETTE RECORDER

MODELS VC-B370N VC-A505W

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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SHARP CORPORATION

SPECIFICATIONS

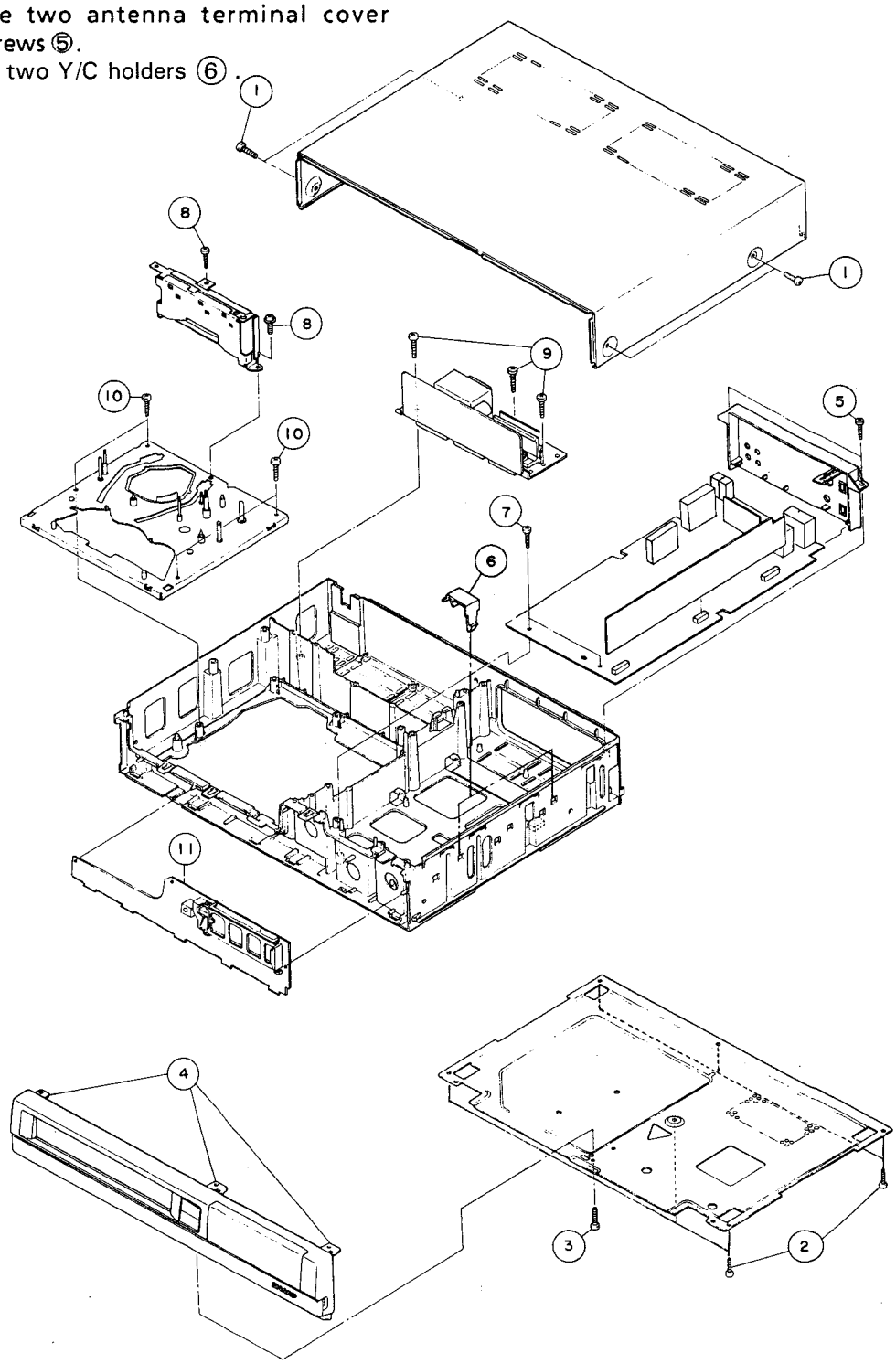
Format:	VHS PAL standard(VC-B370N) VHS PAL/MESECAM standard(VC-A505W)
Video recording system:	Two rotary head helical scan system
Video signal:	PAL colour and B/W signals, 625 lines
Recording playing time:	4 hours max. with SHARP E - 240 tape (SP MODE) 8 hours max. with SHARP E - 240 tape (LP MODE)
Tape width:	12.7 mm
Tape speed:	23.39 mm/sec.(SP MODE),11.70mm/sec.(LP MODE)
Antenna:	75 ohm unbalanced
Receiving channel:	VHF Channel 2 - 12, UHF Channel 21 - 69(VC-B370N) UHF Channel 21 - 69(VC-A505W)
RF converter output signal:	UHF Channel 30 - 39 (Adjustable). Preset to 36 Channel
Power requirement:	AC 220V, 50 Hz
Power consumption:	Approx. 25W
Operating temperture:	5°C to 40°C
Storage temperature:	- 20°C to 55°C
Weight:	6.0 kg
Dimensions:	430 mm (W) x 347 mm (D) x 82 mm (H)
VIDEO	
Input:	1.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
AUDIO	
Input:	Line: - 8 dB, 47k ohm(0 dB = 0.775 Vrms)
Output:	Line: - 5 dB, 1k ohm(0 dB = 0.775 Vrms)
Accessories included:	Antenna 75 ohm coaxial connector cable (plug provided) Operation Manual Infrared remote control

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note: The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

DISASSEMBLY AND REASSEMBLY

1. Remove the four upper cabinet fastening screws ①.
2. Remove the six bottom pane fastening screws ②.
3. Remove the one front panel fastening screw ③.
4. Release the three clips ④ and remove the front panel.
5. Remove the two antenna terminal cover fastening screws ⑤.
6. Remove the two Y/C holders ⑥.
7. Remove the two main PWB fastening screws ⑦.
8. Remove the two head amp PWB fastening screws ⑧.
9. Remove the three power unit fastening screws ⑨.
10. Remove the four machanism chassis fastening screws ⑩.
11. Release the timer PWB 11 fastening clips.

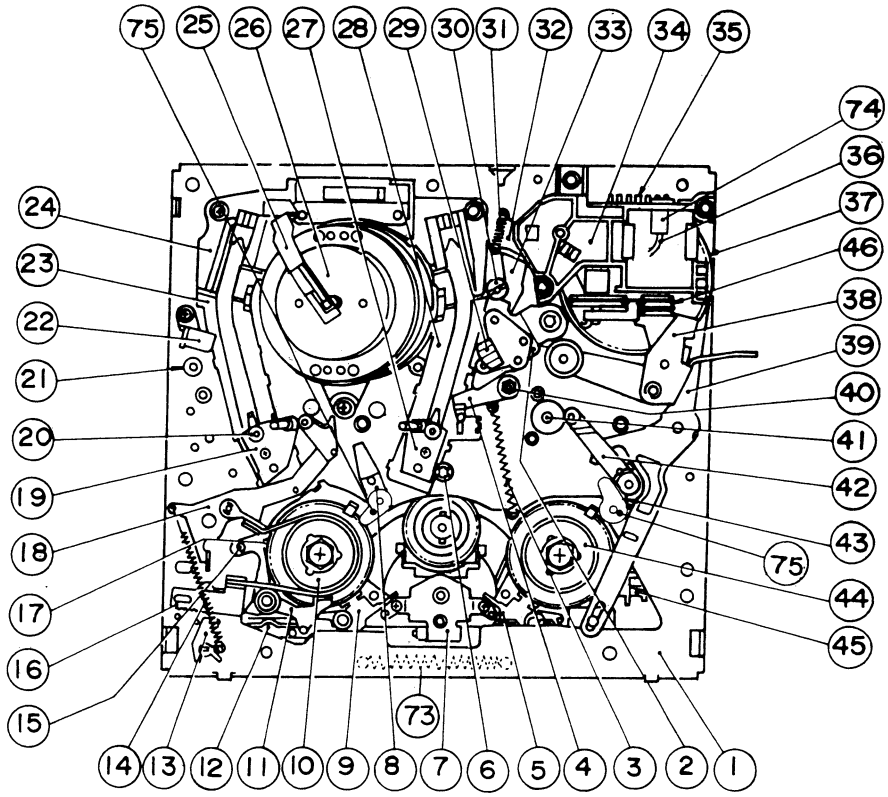


LOCATION LIST OF MECHANICAL PARTS

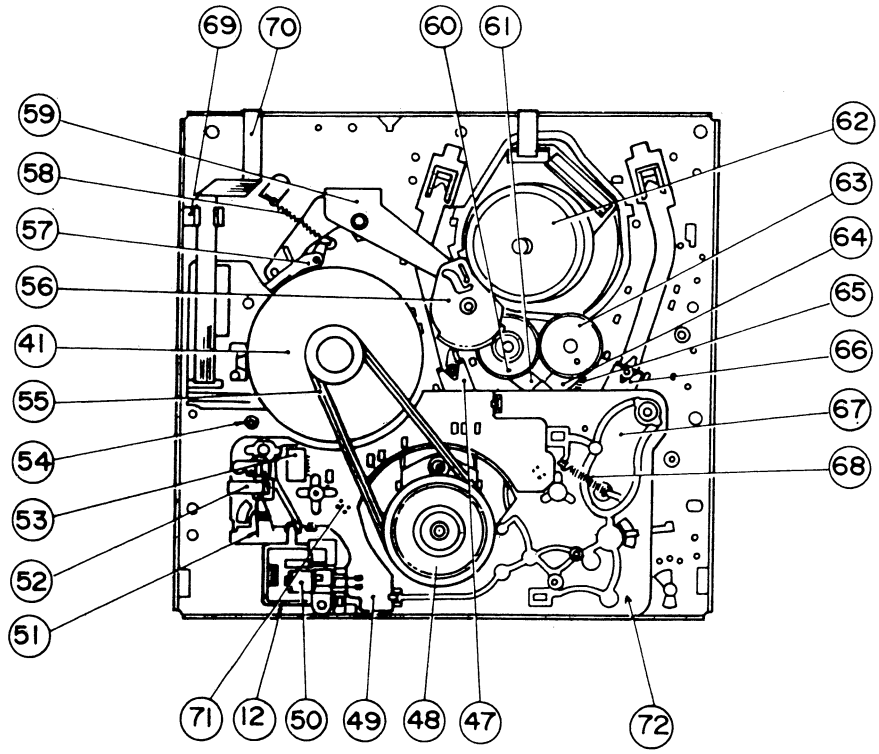
No.	Part Name	No.	Part Name
1	Main chassis ass'y	38	Pinch roller lever ass'y
2	A/C head arm	39	Relay shifter lever
3	Half-loading lever spring	40	Retaining guide
4	Half-loading lever	41	Capstan D.D.motor
5	Main take-up brake lever	42	Reverse guide
6	Cassette LED	43	Reverse guide spring
7	Idler gear ass'y	44	Take-up reel disk
8	Cassette control earth spring	45	Video search brake lever
9	Main supply brake lever	46	Loading belt
10	Supply reel disk	47	Take-up pole base slider
11	Back tension lever	48	Reel pulley
12	Brake shifter	49	Reel sensor PWB
13	Tension spring hook plate	50	Brake solenoid
14	Tension spring	51	Shifter spring
15	Tension release lever	52	Shifter spring cover
16	Tension band ass'y	53	Connector
17	Auxiliary fast forward brake lever	54	Reverse guide spring
18	Tension arm ass'y	55	Reel belt
19	Supply pole base ass'y	56	Loading relay gear
20	Guide roller ass'y	57	Slow brake lever
21	Supply impedance roller	58	Slow brake spring
22	Full erase head ass'y	59	Relay gear drive lever
23	Supply loading rail	60	Take-up loading gear
24	Drum base	61	Take-up loading arm ass'y
25	Earth brush ass'y	62	Drum D.D. motor ass'y
26	Drum ass'y	63	Supply loading gear
27	Take-up pole base ass'y	64	Supply loading arm ass'y
28	Take-up loading rail	65	Loading reciprocating spring
29	A/C head ass'y	66	Supply pole base slider
30	X-position adjusting nut	67	Reel block chassis
31	Half-loading reciprocating spring	68	Auxiliary fast forward brake spring
32	Half-loading reciprocating lever	69	Full flat cable holder
33	Half-loading drive lever	70	Full flat cable(Drum D.D. motor)
34	Loading block ass'y	71	Reel sensor
35	Cam switch	72	Reel block
36	Loading motor	73	Main brake spring
37	Master cam	74	Dew sensor
		75	Take-up reel disk catch holder

LOCATION OF MECHANICAL PARTS

- TOP VIEW



- BOTTOM VIEW



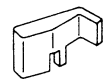
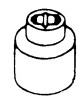
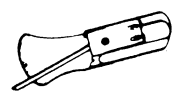
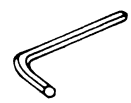
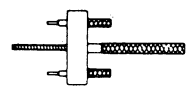
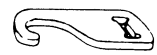
ADJUSTMENT, REPLACEMENT, ASSEMBLY AND CLEANING OF MECHANICAL UNITS

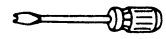
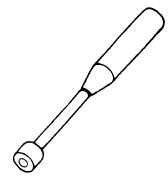
Here we will describe a relatively simple service work in the field, not referring to the more complicated repairs which would require the use of special equipment and tools (drum assembly or replacement, for example).

We are sure that the easy-to-handle tools listed below would be more than handy for periodical maintenance to keep the machine in its original efficient condition.

TOOLS NECESSARY FOR ADJUSTING THE MECHANICAL UNITS

The following tools are required for proper service and satisfactory repair.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1	Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height.
2	Master Plane Jig	JiGMP0001	BY		
3	A/C Head Tilt Adjusting Jig	JiGACH-F18	BU		This Jig is used for settimg the A/C head tilt.
4	Torque Gauge (90g)	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
	Torque Gauge (1.2 kg)	JiGTG1200	CN		
5	Gauge Head	JiGTH0006	AW		
6	Cassette Torque Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up and supply reel and for measuring tape back tension.
7	Tension Gauge (300g)	JiGSG0300	BF		There are two Gauges used for the tension measurements, 300 g and 2.0 kg.
	Tension Gauge (2.0 kg)	JiGSG2000	BS		
8	Hex Wrench (0.9 mm)	JiGHW0009	AE		These Jigs are used for loosening or tightening special Hexagon type screws.
	Hex Wrench (1.2 mm)	JiGHW0012	AE		
	Hex Wrench (1.5 mm)	JiGHW0015	AE		
9	Alignment Tape (PAL)	VROCPSV	CK		This tape is especially used for electrical fine adjustment.
10	Drum Replacing Jig	JiGDT-0001	BG		This is used for replacement of the VCR's upper drum.
11	Tension Gauge Adapter	JiGADP003	BK		This Jig is used for the tension gauge. Rotary Transformer Clearance Adjusting Jig.

No.	Jig Item	Part No.	Code	Configuration	Remarks
12	Special Bladed Screwdriver	JiGDRiVERH-4	AP		This Screwdriver is used for adjusting the guide roller height and X-position.
13	Tension Band and Plate Adjusting Jig	JiGDRiVER-6	BM		This Jig is used for adjusting the tension band and tension plate.
14	Torque Driver	JiGTD1200	CB		This is used to screw down resin-made parts: the specified torque is 5 kg.
15	Box Driver	JiGDRiVER110-7	AS		This Jig is used for height adjustment of the A/C head.
		JiGDRiVER110-4	AV		This Jig is used for height adjustment of the retaining guide.
16	Retaining Guide Height Adjusting Jig	JiGGH-F18	BU		This Jig is used for height adjustment of the retaining guide.
17	Reverse Guide Height Adjusting Jig	JiGRVGH-F18	BU		This Jig is used for height adjustment of the reverse guide.

NOTE:
Current JiGMA0001 contains Master Plane (JiGMP0001) and Disk Height Adjusting Jig (JiGRH0001). Even though new Disk Height Adjusting Jig (JiGRH0002) covers greater height, this new Jig (JiGRH0002) can be used for current JiGRH0001, but current Jig (JiGRH0001) cannot be used as JiGHR0002.Master Plane (JiGMP0001)can be used with JiGRH0001 and JiGRH0002 as well.

MECHANICAL PARTS REQUIRING PERIODICAL INSPECTION

Use the following table as a guide to maintain the mechanical parts in good operating condition.

Parts \ Maintained every	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	3000 hrs.	Remarks
Guide roller ass'y	□	□	□	□	□	Abnormal rotation or significant vibration requires replacement.
Supply impedance roller	□	□	□	□	□	
Supply impedance roller (inner)		□		□	□	Clean with pure high quality isopropyl alcohol.
Supply impedance roller flange	□	□	□	□	□	Clean tape contact area with the specified cleaning liquid.
Retaining guide	□	□	□	□	□	
Slant pole	□	□	□	□	□	
Video head	□	○□	□	○□	○□	Clean tape contact area with the specified cleaning liquid.
Full-erase head	□	□	□	□	□	
A/C head	□	□	□	□	□	
Pinch roller	□	□	□	□	○□	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		□		□		
Loading belt		□		○		
Capstan loading belt		□		○		
Reel block*				○		
Tension band ass'y					○	
*See the table below for servicing the reel block parts.						
Supply/take-up reel disks		□ △		□△○		Clean with pure high quality isopropyl alcohol.
Video serch brake lever				○		
Idler gear ass'y				○		
Reel idler		□△		□△		
Main supply/take-up brake levers				○		

NOTE: ○: Part replacement.
□: Cleaning (For cleaning, use a lint-free cloth dampened with pure isopropyl alcohol).
△: Oil refilling (The indicated point should be lubricated with high quality spindle oil every 1000 hrs).

This model has no adjusting parts for torques, tension, etc. If the reading is outside the specified range, clean or replace the part.

REMOVAL AND REASSEMBLY OF CASSETTE HOUSING CONTROL ASSEMBLY

Notes:

1. During removal and reassembly, be careful not to strike the nearby guide pin, drum, etc.
2. Before removal or reassembly, be sure to unplug the recorder from the AC outlet.
3. When removing and attaching the cassette loading belt, be careful to keep it free from grease.

- **Removal**

1. Put the unit in the cassette eject position.
2. Remove the cassette loading belt ① .
3. Disconnect the FFC (Full Flat Cable) ② at the right side of the cassette housing control assembly.
   Note: Be careful not to break the FFC.
4. Remove the two cassette housing installation screws.
5. Move the cassette housing control assembly (Fig. 1-1) in the direction of arrow ⇒ Ⓑ, and pull it out straight upward.

- **Reassembly**

1. Insert the tabs of the cassette housing control assembly into the mechanism chassis, move it in the direction of arrow ⇒ Ⓐ, and secure temporarily.
   Check to see if the cassette housing control assembly is in the correct position, and then tighten the two screws (XHPS330P06WS0) .
2. Attach the cassette loading belt ①.
3. Connect the FFC ② at the right side of the cassette housing control assembly.

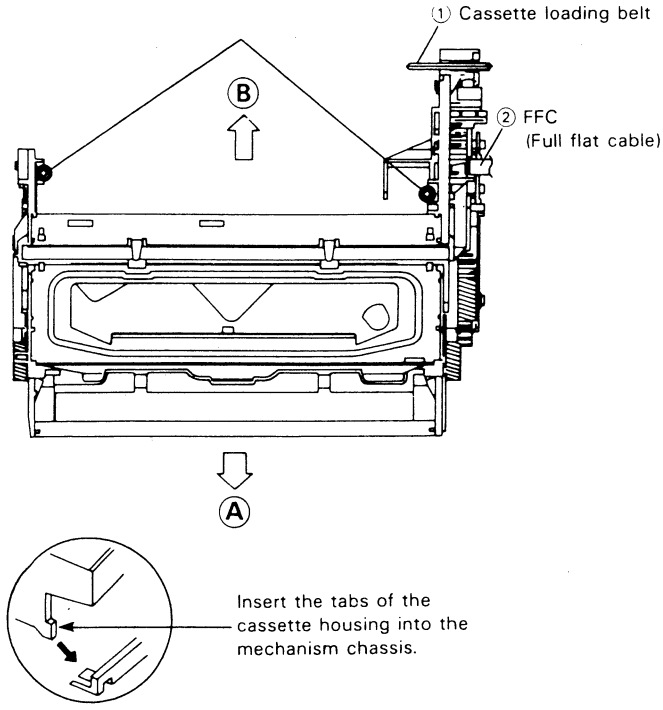


Figure 1-1.

REPLACEMENT OF WORM WHEEL ASSEMBLY

- **Removal (Fig. 1 - 2)**

1. Unsolder the cassette switch connector from the start sensor PWB ①
2. Release the two catches Ⓐon the cassette housing frame (R), and remove the PWB.
3. Unscrew one B tight screw ② to detach the worm bracket ③.
   Note: The bearing ④ can come off position too. So be careful not to let the bearing fall.
4. Remove the worm shaft assembly ⑤, pulley ⑥ and cassette loading belt ⑦ all from the cassette housing frame (R).
5. Finally pull the worm wheel assembly out of the boss of the cassette housing frame (R).

- **Reassembly (Fig. 1-2)**

1. Turn the phase gear ⑧ clockwise until the slider comes to a halt in the cassette insertion direction.
2. Set up the worm wheel gear assembly onto the boss on the cassette housing frame (R), matching the mark Ⓖ on the phase gear ⑧ with the mark Ⓗ on the worm wheel gear.
   Note: Make sure that the slider pin is in the groove of the drive gear arm.
3. Install the pulley ⑥ and apply the cassette loading belt ⑦ both on the worm shaft assembly ⑤. Couple the clutch ⑩ to the clutch lever ⑨. And mount them together in the cassette housing frame (R) .
4. Attach the worm bracket ③ to the worm shaft assembly ⑤. Place them onto the boss on the cassette housing frame (R).
5. Tighten one B tight screw ②.
   Note: Make sure that the parts Ⓒ and Ⓓ of the cassette housing frame (R) are properly engaged with the parts Ⓔ and Ⓕ of the worm bracket ③.
6. Hook the start sensor PWB① on the two positions Ⓐ on the cassette housing frame (R).
   Note: Check that the switch connector is right in the cassette switch mounting hole Ⓑ.
7. Finally resolder the cassette switch connector to the start sensor PWB.

Notes:

1. Do not overtighten the B tight screw (no more than 5.0 ± 0.5 kg. cm), because otherwise the lower threads of the screw hole at the resin-made boss may be broken.
2. Keep in mind that the clutch switching lever should be in the correct positional relation. The mechanism might malfunction even if the lever comes slightly out of position.

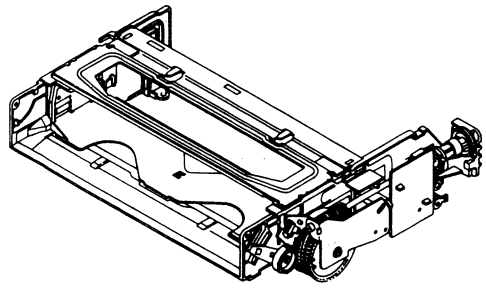


Figure 1-2 (a).

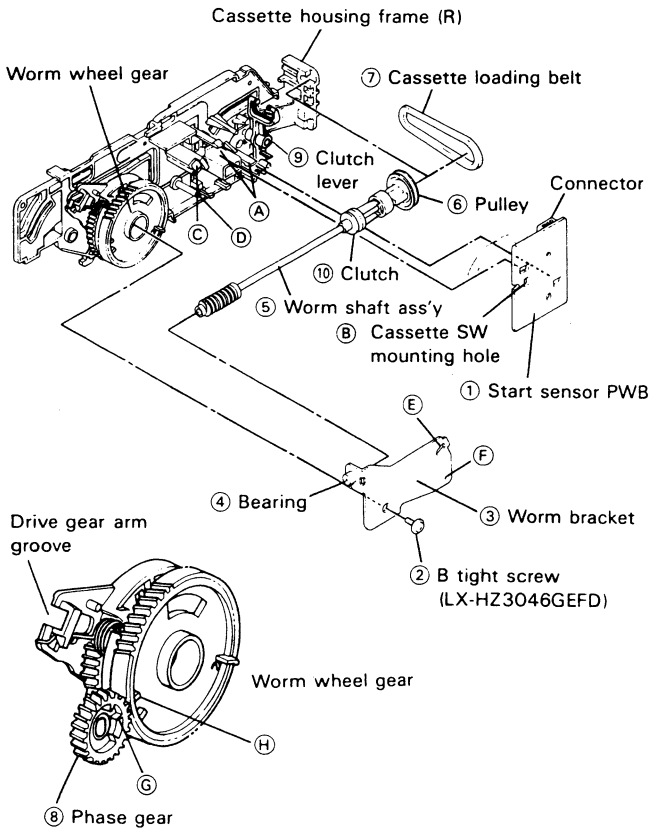


Figure 1-2 (b).

- **Reassembly of drive gear (Fig.1- 3)**

1. Pass the tip Ⓑ of the drive gear spring (R) ② through the square hole Ⓐ of the drive gear (R) ① to the hook the spring in position.
2. Hook one end Ⓓ of the reciprocating spring ③ to the catch Ⓒ of the drive gear (R) ①.
3. Hook the other end Ⓔ of the reciprocating spring ③ to the catch Ⓕ of the worm wheel ④.
4. Fit the drive gear (R) ① to the worm wheel ④ so that the catch Ⓖ and boss Ⓙ on the drive gear (R) are exactly in the square hole Ⓗ and round hole Ⓘ, Respectively, in the worm wheel.

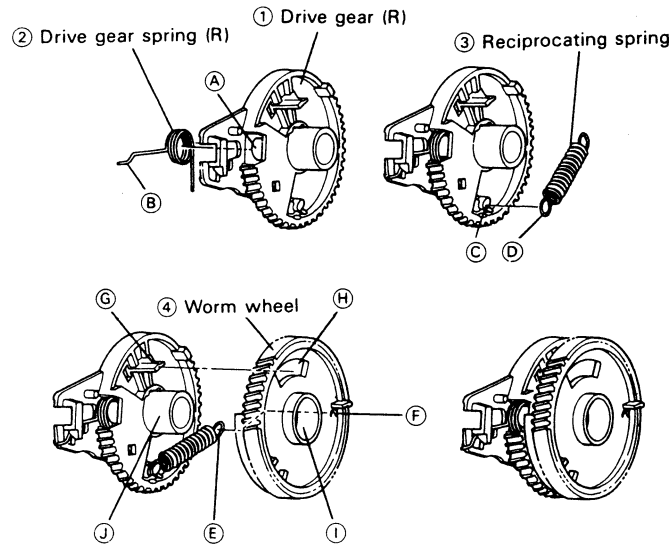


Figure 1-3.

REPLACEMENT OF CASSETTE LOADING BELT

- **Replacement (Fig. 1-4)**

1. Remove the start sensor PWB and worm bracket from the cassette housing frame (R).
2. Remove the worm shaft assembly, pulley and cassette loading belt from the cassette housing frame (R).
3. Replace the cassette loading belt with a new one.

Notes:

1. Do not overtighten the B tight screw which holds the worm bracket in position. The specified tightening torque is 5.0 ± 0.5kg. cm.
2. Make sure that the cassette loading belt, being applied in the cassette housing frame (R), is free from grease. If stained with grease, clean the belt with the specific cleaning liquid.
3. Finally check the clutch switching lever for its specified points.

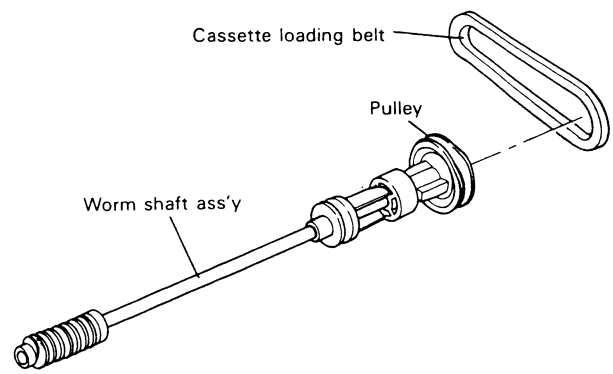


Figure 1-4.

CHECKING THE CLUTCH SWITCHING LEVER

- **Checking (Fig. 1-5)**

When removing and attaching the clutch switching lever from and to the mechanism chassis, check to see if the lever is in the position as shown below. If out of this position, malfunction might result.

1. First make sure that the rib Ⓐ of the drive gear (R) ① and the tip Ⓑ of the switch lever ② are in their correct positions.
2. Check also that the rib Ⓒ of the cassette housing frame (R) and the catch Ⓓ of the clutch lock lever ③ are in their proper positions.
3. Finally be sure that the positional relations between the clutch lever ④ and the clutch ⑤, as well as between the clutch ⑤ and the pulley ⑥, are as specified.

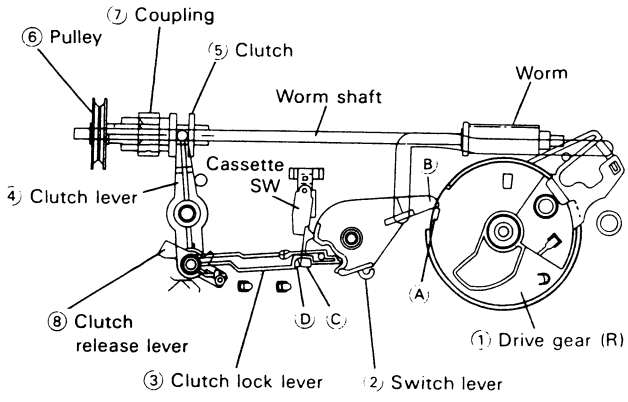


Figure 1-5.

- **Resetting (Fig. 1-6)**

Take the following steps to reset the clutch ⑤ if it is unlocked or if the switch lever ② and clutch lock lever ③ are unlocked.

1. Turn the coupling ⑦ clokwise (as viewed from the front of the set) until the slider comes to the position indicated below.
   Note: Notice that the slider is equipped with a lock mechanism. Unlock the slider, therefore, before shifting the slider.

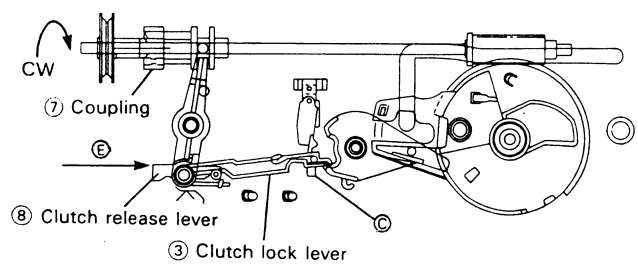


Figure 1-6.

2. Now push the clutch release lever ⑧ in the direction of arrow Ⓔ by hand until the clutch lock lever ③ becomes tightly locked by the part Ⓒ of the cassette housing frame (R).
3. Then turn the coupling ⑦ counterclockwise until the slider reaches the cassette insertion opening and the reciprocating spring is activated.
   Note: There is no need to lock the slider. Just keep shifting the slider.

REPLACEMENT OF LOCK RELEASE LEVER

- **Removal (Fig. 1-7)**

1. Turn the coupling clockwise until the slider ① comes to the cassette down position.
   Note: Before shifting, unlock the slider.
2. Slightly widen the cassette housing frames (R) and (L) to unhook the parts Ⓐ of the slider holders (R) and (L) off the grooves of the above frames.
3. Press the catch Ⓑ on the slider holder (R) ②, and let the slider ① go off this holder in the direction of arrow Ⓒ.
4. Take the lock release lever ass'y ③ out of the slider holder (R) ② .

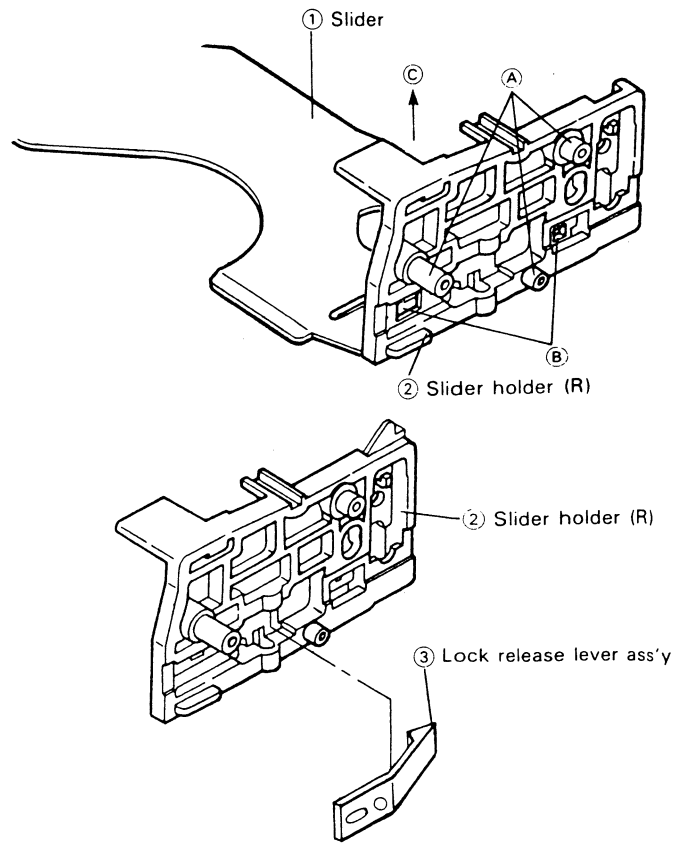


Figure 1-7.

- **Reassemdly (Fig. 1-7)**

1. Attach the lock release lever ass'y ③ to the slider holder (R) ② .
2. Fit the slider holder (R) ② to the slider ①.
3. Slightly widen the cassette housing frames (R) and (L), and set the parts Ⓐ of the slider holders (R) and (L) to the grooves of the cassette housing frames (R) and (L).
   Note: Make sure of the following fitting: Fitting between the parts Ⓐ of the slider holders (R) and (L) and the grooves of the cassette housing frames (R) and (L), as well as between the drive gear arms and the slider holders (R) and (L).
4. Turn the coupling counterclockwise until the slider ① comes to the cassette insertion opening.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Open the lid of a cassette tape by hand and hold it with a piece of vinyl tape.
2. Set the cassette tape in the tape mechanism.Then, stabilize the cassette tape with a weight (500g or less).
   Note: The weight should not be more than 500g.

REMOVAL AND HEIGHT ADJUSTMENT OF REEL DISKS

- **Removal of supply reel disk:**

1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Remove the tension band ⑧.
4. Unscrew the screw ⑩ and release the cassette housing control ground spring ⑫ off the reel disk catch ①.
5. Release the supply reel disk catch ① and back tension lever ②. Pull out the supply reel disk ③ upward.

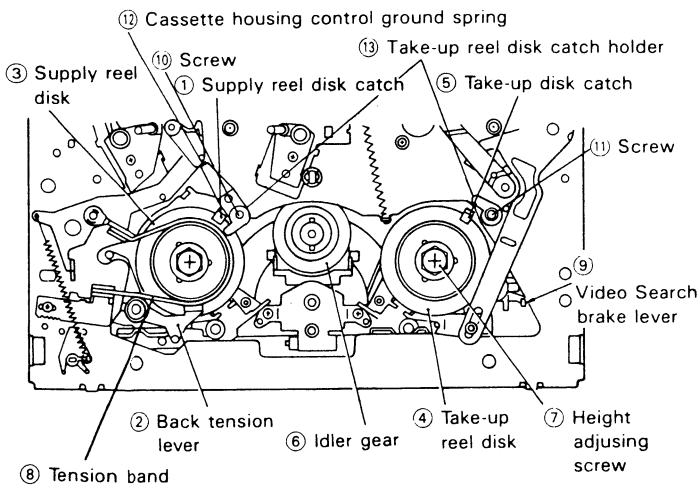


Figure 1-8.

- **Removal of take-up reel disk:**

1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Unscrew the screw ⑪ and release the take-up reel disk catch holder ⑬ off the reel disk catch ⑤.
4. Release the take-up reel disk catch ⑤. Pull out the take-up reel disk ④ upward.

Notes:

1. After replacing either of the reel disks, be sure to perform the height adjustment procedure.
2. Take care not to deform the tension hand.
3. Be careful not to deform the back tension lever, main supply / take - up brake levers, video search brake lever and auxiliary fast forward brake. (See pages 4 and 5.)
4. Check the tension pole position. (See pages 15.)
5. Be careful not to damage the supply reel disk, take-up reel disk and idler gear ⑥.
6. Whenever replacing, clean and lubricate the reel disk shaft.

- **Reassembly of supply reel disk:**

1. Clean the reel disk shaft and apply oil (high quality spindle oil) to it, then install a new supply reel disk onto the shaft.
2. Replace the cassette housing control ground spring ⑫ in position and tighten up the screw ⑩.
3. Replace the tension band ⑧.
4. Adjust the reel disk height by using the master plane and reel disk height adjusting jig.

- **Reassembly of take-up reel disk:**

1. Clean the reel disk shaft and apply oil (high quality spindle oil) to it. Then, release the video search brake lever and install a new take - up reel disk onto the shaft.
2. Replace the take-up reel disk catch holder ⑬ in position and tighten up the screw ⑪ .
3. Adjust the reel disk height by using the master plane and reel disk height adjusting jig.

Notes:

1. During removal and reassembly, be careful not to damage the reel disks, reel shafts, idler gear and brake levers.
2. After reassembly, check the back tension in video search rewind mode (see page 14) and checking the brake torque (see page 16)

HEIGHT ADJUSTMENT

1. Remove the cassette housing assembly, and place the master plane onto the mechanism unit as shown in Fig.1-9 (a), taking care not to hit the drum.
2. Ensure that the reel disk is lower than the part Ⓐ but higher than the part Ⓑ of Fig. 1-9 (b), by using the reel disk height adjusting jig. If the height is not correct, adjust the height adjusting screw.
   Note: Whenever replacing the reel disk, perform the height adjustment.

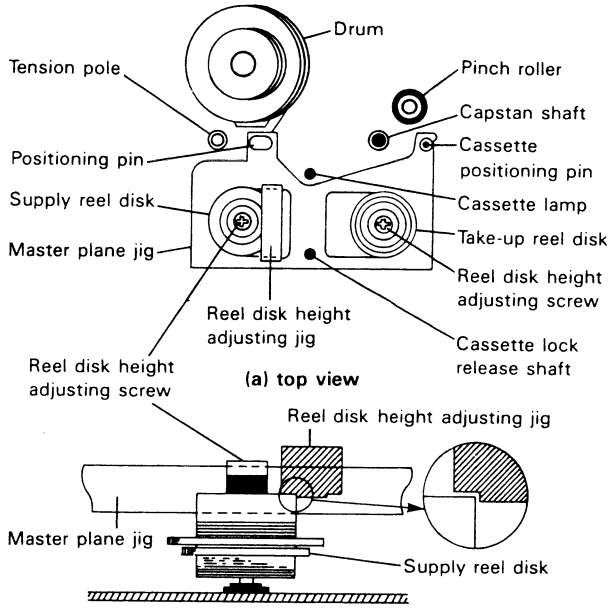


Figure 1-9.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST-FORWARD MODE

Notes:

1. When setting the torque gauge on the take-up reel disk and pushing the fast-forward button to start the reel disk turning, take care that the torque gauge does not fly off.
2. The checking and adjustment should be carried out without a video cassette tape in place.

- **Checking**

1. Remove the cassette housing assembly.
2. Place the torque gauge on the take-up reel disk and push the fast-forward button to place the unit in the fast-forward mode.
3. Turn the torque gauge slowly (one rotaion every 2 to 3 seconds) by hand in the take-up direction and check that it indicates 700 g.cm or more.

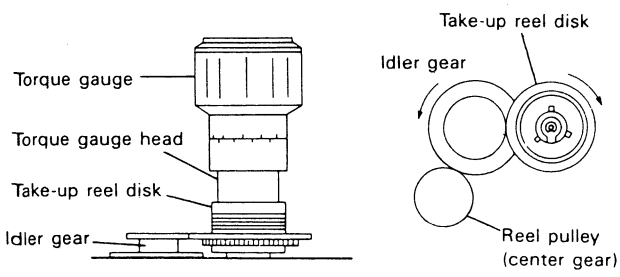


Figure 1-10.

- **Adjustment**

If the take-up torque is outside the specified range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
If the take-up torque is still out of specification, replace the reel belt.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

Notes:

1. When setting the torque gauge on the supply reel disk and pushing the rewind button to start the reel disk turning, take care that the torque gauge does not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

- **Checking**

1. Remove the cassette housing assembly.
2. Place the torque gauge on the supply reel disk and push the rewind button to place the unit in the rewind mode.
3. Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction and check that in indicates 700 g.cm or more.

- **Adjustment**

If the take-up torque is outside the specified range clean the capstan DD motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
If the take-up torque is still out of specification, replace the reel belt.

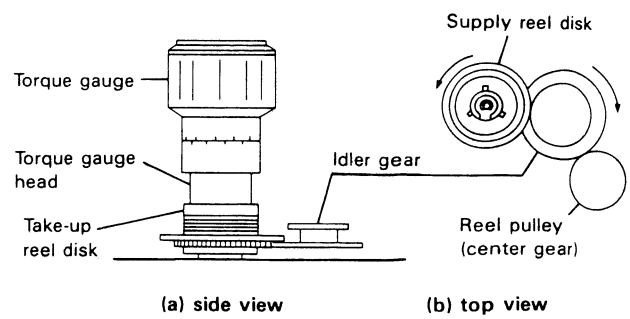


Figure 1-11.

CHECKING OF TAKE-UP TORQUE IN PLAY-BACK MODE

- **Checking**

Load a cassette torque meter (JiGVHT-063) into the unit and push the record button to place the unit in the record mode. Then check that the torque is as specified;

torque: 95 ± 30 g.cm

Note:
The measured torque fluctuates due to the rotational deviation of the reel drive unit. Use the center of the fluctuating range as the measured value.

1. If the take-up torque in playback mode is outside the specified value, replace the take-up reel disk.
2. Push the record button to place the unit in the record mode, and check that the take-up torque is within the specified range.

CHECKING OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- **Checking**

Load a cassette torque meter (JiGVHT-063) into the unit and push the play and video search rewind buttons to place unit in the video search rewind mode.
Then check that the torque is as specified;
torque in video search rewind mode : 170 ± 40 g.cm

Note:
The measured torque fluctuates due to the rotational deviation of the supply reel disk. Use the center of the fluctuating range as the measured value.

1. If the take-up torque in video search rewind mode is outside the specified range, replace the supply reel disk.

CHECKING THE FAST FORWARD BACK TENSION

Note:
Set the torque gauge securely on the supply reel disk; if the torque gauge is loose above the reel disk, an inaccurate measurement will result.

- **Checking**

1. Remove the cassette housing assembly.
2. Push the fast forward button to place the unit in the fast forward mode.
3. Place the torque gauge on the supply reel disk, and turn it clockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g.cm.

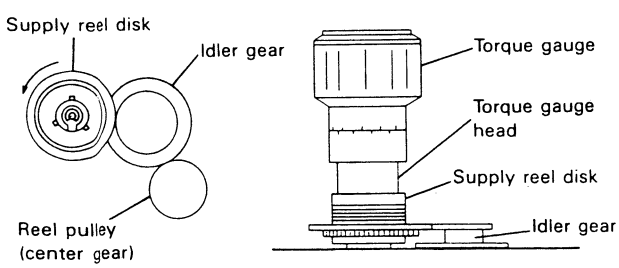


Figure 1-12.

CHECKING THE REWIND BACK TENSION

Note:
Set the torque gauge securely on the take-up reel disk; if the torque gauge is loose above the reel disk, an inaccurate measurement will result.

- **Checking**

1. Remove the cassette housing assembly.
2. Push the rewind button to place the unit in the rewind mode.
3. Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g.cm.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

Note:
Set the torque gauge securely on the take-up reel disk; if the torque gauge is loose above the reel disk, an inaccurate measurement will result.

- **Checking**

1. Remove the cassette housing assembly.
2. Push the play button to place the unit in the playback mode.
3. Push the video search rewind button to place the unit in the video search rewind mode.
4. Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 40 ± 10 g.cm.

CHECKING THE PINCH ROLLER PRESSURE

1. Remove the cassette housing assembly.
2. Push the play button to place the unit in the playback mode.
3. Hook the tension gauge adapter around the pinch roller shaft.
4. Using a tension gauge, pull the pinch roller in the direction of arrow ⇒ Ⓐ so that the pinch roller moves away from the capstan shaft.
5. Gradually release the pressure in the direction of arrow⇒ Ⓑ to allow the pinch roller to touch the capstan shaft. When the pinch roller just touches the capstan shaft, read the indication on the gauge.
6. Check that the reading of the tension gauge is in the range of 1000 to 1200 gr.

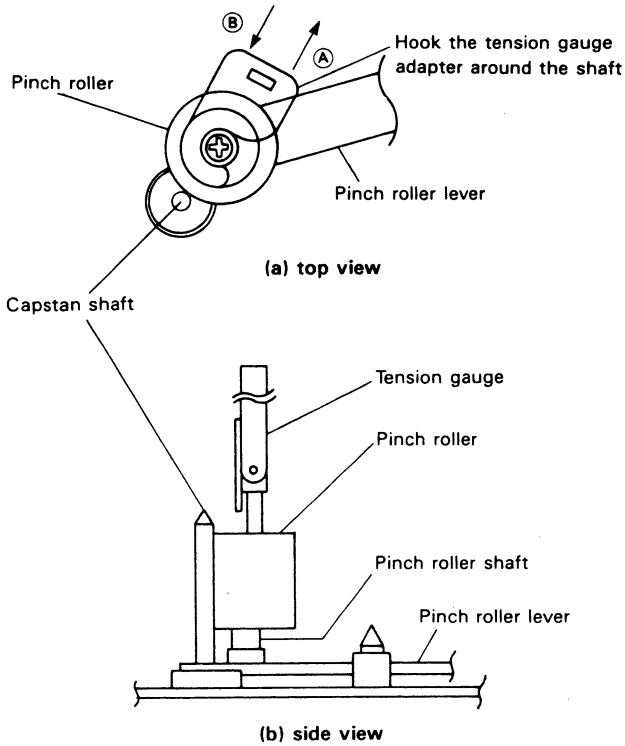


Figure 1-13.

ADJUSTMENT OF TENSION POLE

- **Position checking (Fig. 1-14)**

1. Remove the cassette housing assembly.
2. Set a video cassette tape and push the record button to place the unit in the record mode.
3. The pole bases (see page 4; item 19 and 27.) operate to bring the tape outside the cassette housing and simultaneously the tension pole moves to the left, loading the tape. At that time (loading mode), check the position of the tension pole.

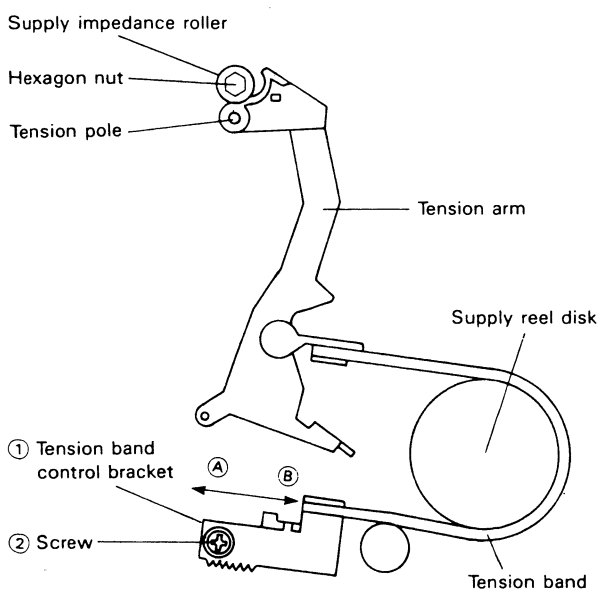


Figure 1-14.

4. At the end of the tape (E-180), check that the tension pole's center is aligned with the supply impedance roller's center.
5. Check that the tape is neither curled against the flange of the supply impedance roller nor mounted over it.
6. During the video search rewind mode with no cassette tape in place, check the supply reel disk is free of the tension band.

- **Position adjustment (Fig. 1-15)**

1. If the tension pole is at the right of the supply impedance roller's center, shift the tension band control bracket ① in the direction of arrow ⇒ Ⓑ , and tighten the screw ②.
2. If the tension pole is at the left of the supply impedance roller's center, shift the tension band control bracket ① in the direction of arrow ⇒ Ⓐ , and tighten the screw ② .

ADJUSTMENT OF RECORD/PLAYBACK BACK TENSION

- **Checking**

1. Remove the cassette housing assembly.
2. Put a torque cassette meter into the unit.
3. Push the record button to place the unit in the record mode. Check that the reading of the cassette meter is 23 to 28 g.cm.
4. Make sure the video cassette tape is wound over the retaining guide.
5. Make sure that the tape is not slack nor damaged at both ends.

- **Adjustment (Fig. 1-15)**

1. If the back tension is lower than specified, move the tension spring hook plate ① in the direction of arrow Ⓐ so that the protuberance behind be tight in the hole.
2. If the back tension is higher than specified, move the tension spring hook plate ① in the direction of arrow Ⓑ so that the protuberance behind be tight in the hole.

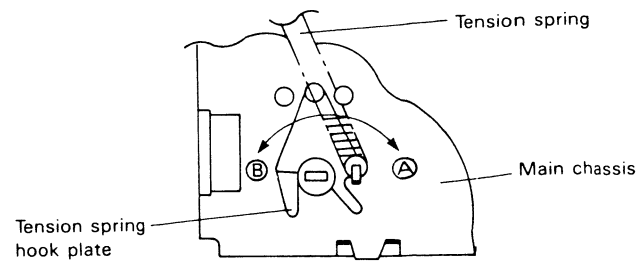


Figure 1-15.

Figure 1-16. Not used.

CHECKING THE BRAKE TORQUE

A) Checking the brake torque at the supply side.

- Checking

1. Remove the cassette housing assembly.
2. Check that the mechanism is in the stop mode.
   Note: The stop mode is brought about by unplugging the power cord with the mechanism in the fast forward or rewind mode.
3. Separate the idler gear from the supply reel disk and place the torque gauge on the supply reel disk.
4. Slowly rotate the torque gauge in the clockwise (CW) direction of the supply brake so that the reel disk and the gauge needle rotate at the same speed. Do the same in the counterclockwise (CCW) direction of the supply brake. Check that the values are within the specified range (CW direction = 280 to 720 g.cm, CCW direction = 110 to 230 g.cm) and that the brake torque in the CW direction is at least twice as high as that in the CCW direction.

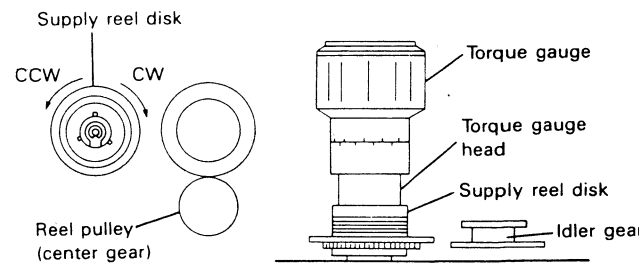


Figure 1-17.

- Adjustment

1. If the supply brake torque is outside the specified range (CW direction = 280 to 720 g.cm, CCW direction = 110 to 230 g.cm), clean the supply reel disk and brake lever felt, then recheck the torque.
2. If the supply brake torque is still outside the specified range, replace the main brake spring.

B) Checking the brake torque at the take-up side.

- Checking

1. Remove the cassette housing assembly.
2. Check that the mechanism is in the stop mode.
   Note: The stop mode is brought about by unplugging the power cord with the mechanism in the fast forward to rewind mode.
3. Separate the idler gear from the take-up reel disk and place the torque gauge on the take-up reel disk.

4. Slowly rotate the torque gauge in the CCW direction of the take-up brake so that the reel disk and the gauge needle rotate at the same speed. Do the same in the CW direction of the take-up brake. Check that the values are within the specified range (CCW direction = 280 to 720g.cm, CW direciton = 90 to 200 g.cm) and that the brake torque in the CCW direction is at least twice as high as that in the CW direction.

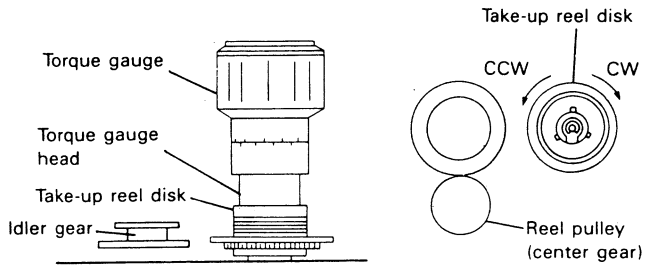


Figure 1-18.

- **Adjustment**

1. If the take-up brake torque is outside the specified range (CCW direction = 280 to 720g.cm, CW direction = 90 to 200 g.cm), clean the take-up reel disk and brake lever felt, then recheck the torque.
2. If the take-up brake torque is still outside the specified range, replace the main brake spring.

REPLACEMENT OF A/C (Audio/Control) HEAD

Note:

After replacement, perform the adjustment of tape drive train. Under any circumstances avoid touching the head (indicated by"⇒" in Fig. 1-20(c)).

- **Replacement (See Figs. 1-19 and 1-20.)**

1. Loosen the tilt adjusting screw ⑥ by using Phillips-screwdriver.
2. Remove the azimuth adjusting screw ⑤ with a Phillips screwdriver.
3. Remove the A/C head screw ④ with a Phillips screwdriver, paying attention to the spring ⑦ between the A/C head screw ④ and A/C head pedestal.

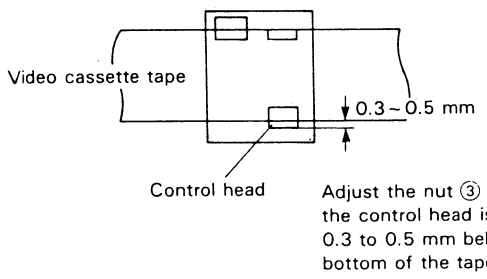

Video cassette tape
0.3~0.5 mm
Control head
Adjust the nut ③ so that the control head is visible 0.3 to 0.5 mm below the bottom of the tape.

Figure 1-19.

4. Remove the A/C head PWB ⑧ soldered to the A/C head assembly, and solder the A/C head PWB ⑧ onto a new A/C head assembly.
5. The A/C head assembly ① is attached so that the A/C head arm ② and A/C head pedestal are roughly parallel to each other.

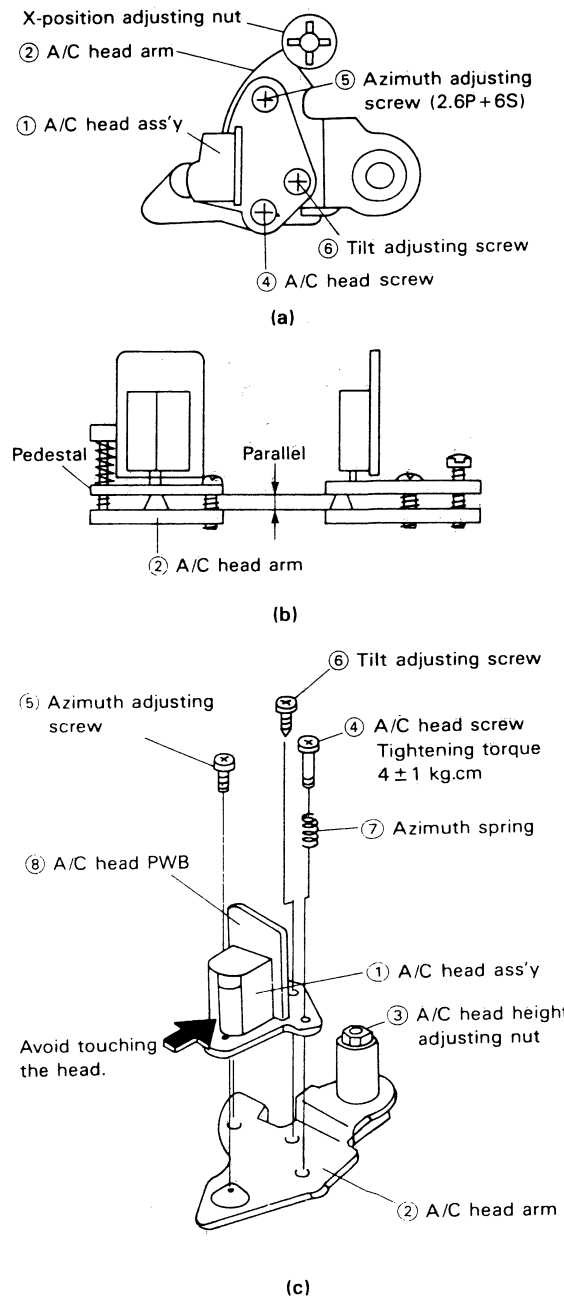


Figure 1-20.

6. Set the A/C head tilt angle according to Fig. 1-22.
7. Play an alignment tape and roughly adjust the height of the A/C head, visually, by turning the A/C head adjusting hexagon nut ③ with the box driver (JiGDRiVER110-7) until the tape comes to the position shown below. (See Fig. 1-19.)
8. Set the mechanism to the loading mode. Place the A/C head tilt adjusting jig on the main chassis as shown in Fig. 1-21. Slowly turn the tilt abjusting screw ⑥ with a Phillips screwdriver until there is no gap between the jig and the A/C head.

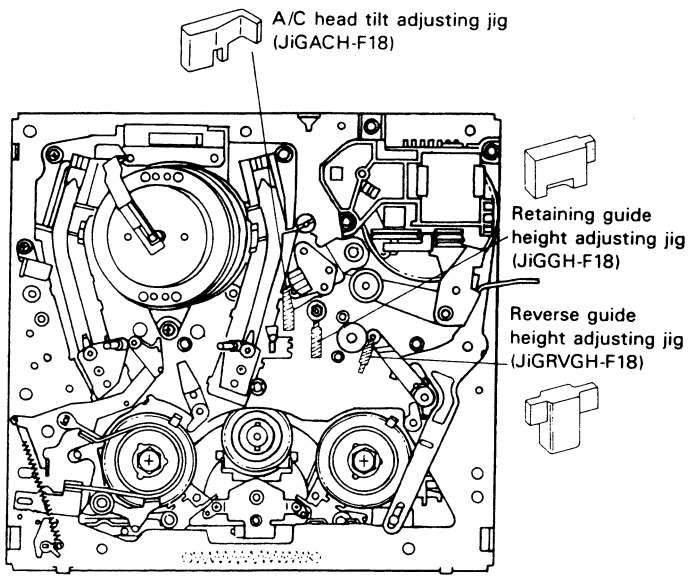


Figure 1-21.

Be sure there is no gap.

It is easier to see a gap, if a piece of white paper is placed behind the head and jig.

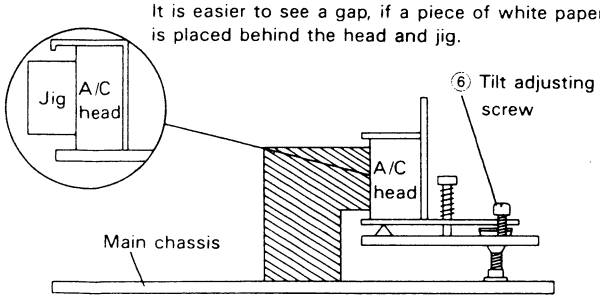


Figure 1-22.

HEIGHT ADJUSTMENT OF RETAINING GUIDE AND REVERSE GUIDE

- **Adjustment**

1. Before the rough adjustment of tape drive train, check that the retaining guide and reverse guide heights are within the specified values of Fig. 1-23, by using the special jigs.
2. If the retaining guide height is not correct,adjust the height with the box driver (JiGDRiVER110-4).
3. If the reverse guide height is not correct, use the height adjusting washers.

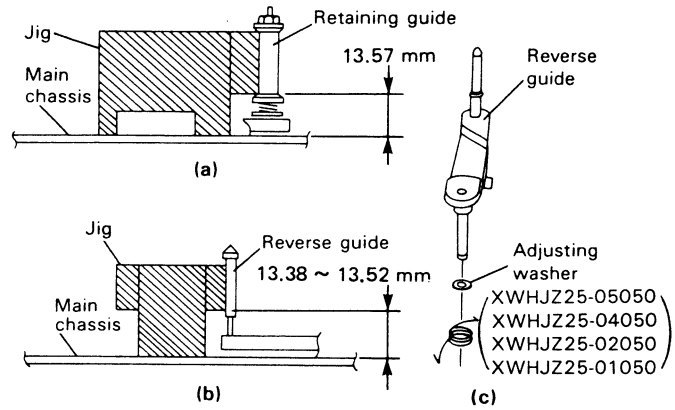


Figure 1-23.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Check and adjust the position of the tension pole and the back tension.(See pages 15)
2. Set the tilt angle of the A/C head as shown in Fig. 1-22.
   Note:
   If the A/C head is adjusted, check and set the tilt angle as in the case of replacement.
3. When the above adjustments have been completed, roughly adjust the tape drive train using an alignment tape.
   a. Connect the oscilloscope to the test points for PB chroma output (TP501) and head switching pulse (TP502). Allow the PB CHROMA signal to be triggered by the head switching pulse of TP502.
   b. Loosen the setscrew of the guide roller, and tighten it loosely by using the special bladed screwdriver (JiGDRiVERH-4) to such an extent that the guide roller turns smoothly.
   c. Set the alignment tape (VROCPSV) on the reel disk.
   Note:
   Attach a 400 to 500g.weight to the cassette tape when a cassette tape is placed on the reel disk with the cassette housing assembly removed.

d. Place the unit to the playback mode.
e. Observe the waveform of the PB chroma, and push the (+)or(-) tracking button to check for a flat PB chroma. This adjustment is satisfactory if a flat response is obtained on the waveform of the PB chroma when the (+)or(-) tracking button is pushed. If a flat response cannot be obtained roughly adjust the guide roller using the special bladed screwdriver until the PB chroma output is flat.
While keeping the both(+)and(-) tracking buttons down, adjust the X-position adjusting nut so that the PB CHROMA envelope becomes almost maximum. In the case of rough adjustment, pay particular attention to the outlet side (see Fig. 1-24).
f. Adjust the retaining guide height so that the lower flange of the retaining guide touches the bottom edge of the tape. At that time, check that the tape is not curled nor wrinkled.

The A/C head height and azimuth are adjusted after rough adjustment of the tape drive train has been done.

a. Use the alignment tape and play back its audio 7kHz signal (monoscope pattern for video signal)and observe the audio output on an oscilloscope.
b. Adjust the azimuth adjusting screw so as to obtain the maximum audio output.
c. Use the alignment tape and play back its audio 1kHz signal (colour bar for video signal) and slowly rotate the A/C head height adjusting nut with the special box driver so as to obtain the maximum audio output.
d. After the height adjustment, use the alignment tape and play back its audio 7kHz signal (monoscope pattern for video signal) again and adjust the azimuth adjusting screw so as to obtain the maximum audio output.
After this adjustment, apply glyptal to the screws and nuts to fix them.

5. The final adjustments of tape drive train and X-position are adjusted after adjustment of the A/C head has been completed.
a. Connect the oscilloscope to the test points for PB chroma output (TP501) and head switching pulse (TP502). Allow the PB CHROMA signal to be triggered by the head switching pulse of TP502.
b. Play back the tape drive train alignment tape (VROCPSV).
c. Finely adjust the guide roller's height, observing the envelope on the oscilloscope.
Push the (+) or (-) tracking button while adjusting the guide roller, in order to obtain an envelope waveform which is as flat as possible. If the tape is above or below the helical lead, the PB chroma waveform will take the shape shown in Fig. 1-26.
Adjust for maximum flatness of the envelope according to the figure.
Note:
Adjustment is made for CH-1 of switching pulse (low level). The broken lines indicate the envelope waveform when the tape does not run properly.
Push the (+) or (-) tracking button to check the envelope waveform.
After adjustment, tighten the setscrew of the guide roller firmly.
Play back the alignment tape (VROCPSV) again in the unloading mode, and make sure that there is on change in the PB chroma output.

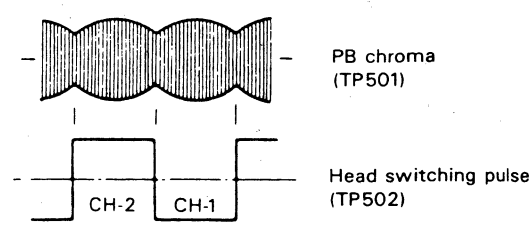


Figure 1-24.

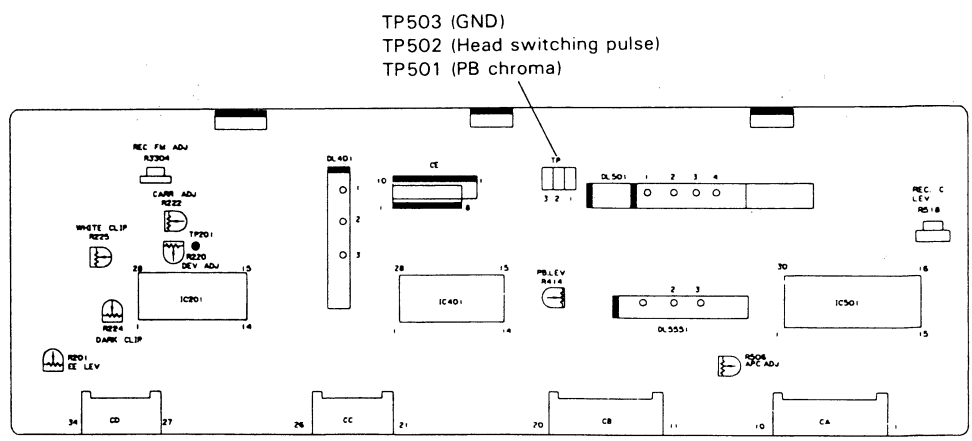


Figure 1-25.

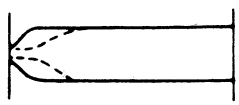
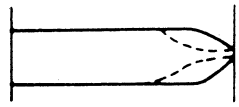
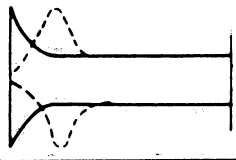
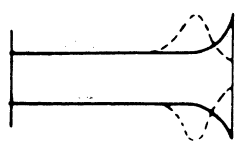
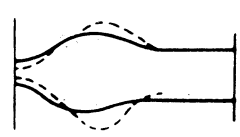
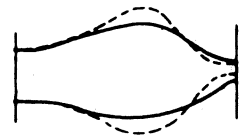
	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclokwise direction (raises guide roller) to have the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclocIwise direction (raises guide roller) to have the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-26.

d. Adjust the retaining guide height so that the lower flange of the retaining guide touches the bottom edge of the tape. At that time, check that the tape is not curled nor wrinkled.
e. The X-position is adjusted after tape drive train adjustment.
Push the (+) and (-) tracking buttons at the same time to set the tracking buttons to the preset mode, and rotate the X-position adjusting nut shown in Fig. 1-27 with the special bladed screwdriver for maximum switching pulse low side envelope, and then adjust the A/C head position. Now adjust the play back switching point to 6.5 ± 0.5H.
Check the flatness of envelope and sound by selfrecording.

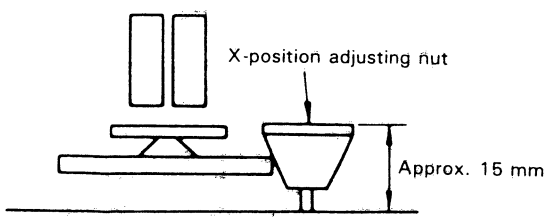


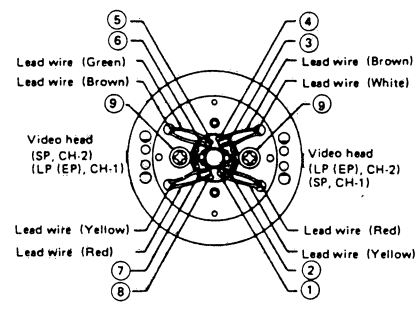
Figure 1-27.

PEPLACEMENT OF UPPER DRUM

Note:
The engagement between the lower drum (outer diameter) and the upper drum(inner diameter) is very accurate, in the order of microns, and care should be paid to their replacement. Even a slight entry of foreign material will affect the accuracy of their reassembly.

- **Replacement (See Fig. 1-28)**

1. Unsolder the leads (1) to (8) from the video head and remove them.
2. Remove the two screws (9) (brass screws with washers) using a Phillips screwdriver.



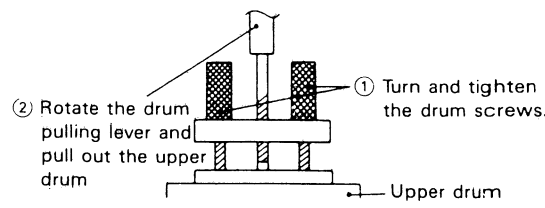


Figure 1-28.

3. Withdraw the upper drum by pulling it up with the upper drum replacement jig.

Notes:
1. Avoid touching the drum surface with bare hands.
2. Do not hit the screws when tightening them.

- **Reassembly**

1. Set a new drum for replacement, as shown in Fig. 1-28, and position the leads properly.

Notes:
1. Before replacing the upper drum, check that there are no scratches or dust on the edge or the outer surface of the lower drum.
2. Before replacing the upper drum, check that there are no scratches or dust on the edge or the inner surface of the upper drum.
3. On assembling these parts, slowly insert the upper drum onto the lower drum with the upmost care, so that the upper drum is not tilted.
4. When assembling these parts, do not allow foreign material to come between them.
5. Do not use excessive force when driving in the screws.

2. Fasten the upper drum in place with the two screws ⑨ .
3. Solder the leads ① to ⑧ at their respective pads.

Note:
Soldering should be performed quickly and carefully without touching adjacent patterns.

4. After replacement, be sure to check the tape drive train adjustment and the following.
   - Adjustment of the playback switching point (See page 26).
   - Checking and adjustment of the X-position (See page 27).
   - Adjustment of SP slow tracking preset (See page 26).

REPLACEMENT OF D.D. (DIRECT DRIVE) MOTOR

Note:
Put the unit in the cassette eject position.

- **Removal**

1. Remove the six screws from the bottom panel and remove the bottom panel.
2. Disconnect the drum D.D. motor lead connector.
3. Remove the two screws① which hold the D.D. rotor assembly in place, using a Phillips screwdriver.
4. Remove the D.D. rotor assembly.
5. Remove the three screws ② which hold the D.D. stator assembly in place, using a Phillips screwdriver.
6. Remove the D.D. stator assembly.

- **Reassembly**

1. Place the D.D. stator assembly on top of the lower drum.
2. Secure the D.D. stator with the three screws ② using a Phillips screwdriver.

Note:
Be careful not to scratch the core, windings or Hall device.

3. Install the D.D. rotor assembly onto the drum shaft.

Note:
Install the assembly directly onto the direction of the shaft. (Refer to Fig. 1-29 for the installation direction.)

4. Secure the D.D. rotor assembly with the screws ①.
5. Connect the drum D.D. motor lead connector.
6. Install the bottom panel with six screws.

Note:
Be careful not to damage the upper drum or the video head.

7. After replacement of the D.D. motor as shown above, proceed with the adjustment of the playback switching point.

Notes:
1. Be careful not to damage the upper drum or the video head.
2. Be sure that the Hall device and the D.D. stator assembly are not damaged by the D.D. rotor assembly or other parts.

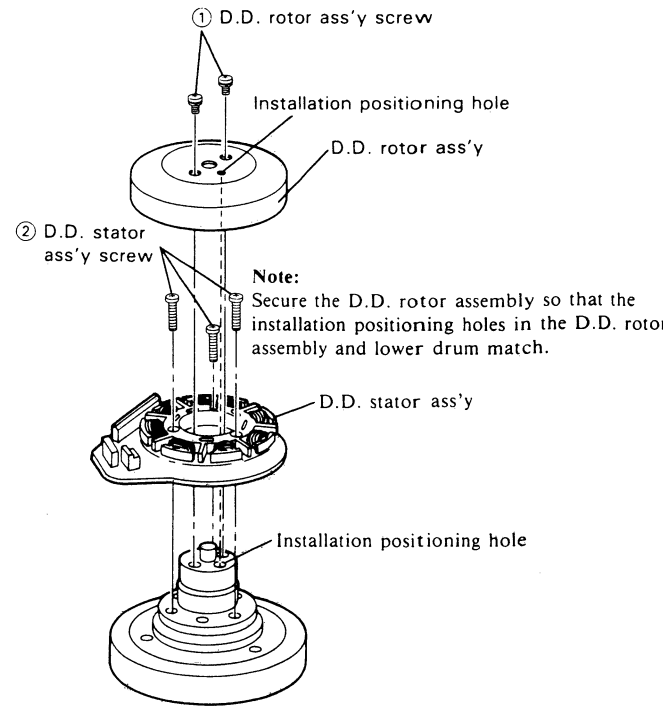

① D.D. rotor ass'y screw
Installation positioning hole
D.D. rotor ass'y
② D.D. stator ass'y screw
Note:
Secure the D.D. rotor assembly so that the installation positioning holes in the D.D. rotor assembly and lower drum match.
D.D. stator ass'y
Installation positioning hole

Figure 1-29.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- **Removal**

1. Remove the FFC ① from the capstan D.D. motor control PWB ②.
2. Remove the three screws ③, and remove the capstan D.D. motor ④ from the main chassis.

- **Reassembly**

1. Mount the capstan motor on the main chassis while making sure not to allow the capstan shaft to hit the main chassis, and attach it with the three screws ③.
2. Insert the FFC ① into the capstan D.D. motor control PWB ②.

Notes:

1. After installing the capstan D.D. motor, be sure to rotate the capstan motor and check the movement.
2. Check and adjust the servo circuit.

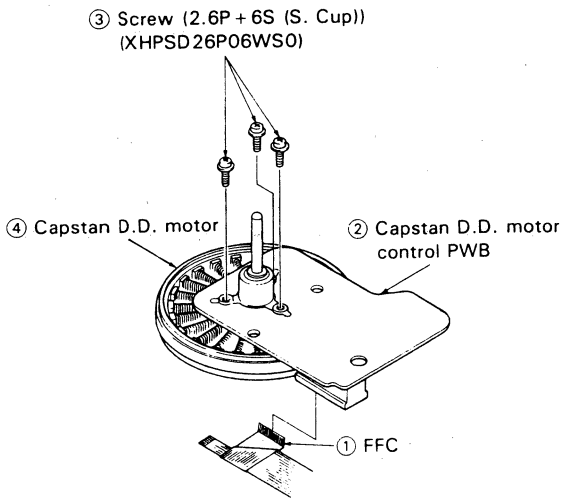


Figure 1-30.

REMOVAL AND REASSEMBLY OF THE LOADING GEAR BLOCK

- **Removal**

1. Remove the slow brake spring ① and slow brake lever ②.
2. Take out the E ring Ⓐ first and then the loading relay gear ③.
3. Rotate the take-up loading gear ④, take-up loading arm assembly ⑤, supply loading gear ⑥ and supply loading arm assembly ⑦ slightly in the loading direction, and take them all out.
4. Finally remove the E ring Ⓑ and relay gear drive lever ⑧.

- **Reassembly**

1. Take the reverse steps of the removal.
2. In reassembling, match the tally marks on the gears, as shown in Fig. 1-31

Note:

1. When reassembling, apply grease to the following points; all the gear teeth, all the gear shafts, and the cam groove of loading relay gear which the relay gear drive lever pin comes in.
2. Be careful not to deform the supply/take-up loading arms.
3. Be careful not to stain the felt of the slow brake.
4. Be also careful to keep the outer surface of the capstan D.D. motor ⑨ free from dust and dirt. (If stained, the MR (Magnet Resistor) element ⑩ might be damaged.)
5. Reshape the anti-fall hooks of the slow brake, supply/take-up loading gears as required. Avoid reshaping too much.

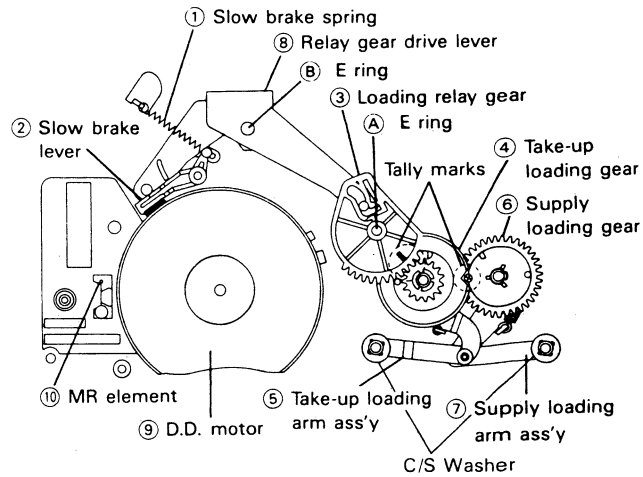


Figure 1-31.

REMOVAL AND REASSEMBLY OF LOADING BLOCK

- **Removal**

1. Remove the leads and the cassette loading belt from the loading block.
2. Unscrew the three screws ③, and pull up and remove the loading block.

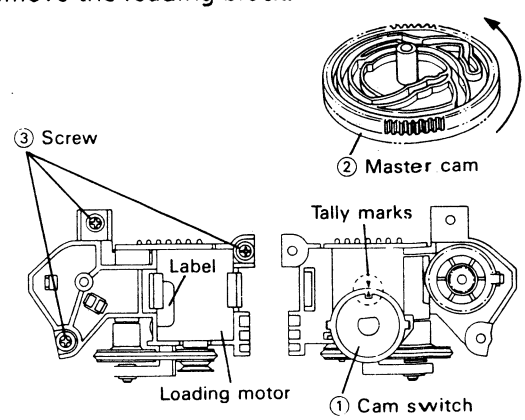


Figure 1-32.

- **Reassembly**

1. Turn the master cam ② all the way counter-clockwise.
2. Match the tally mark on the cam switch ① with the mating mark. Fit the loading block and the master cam with each other. Tighten up the three screws.
3. Finally connect the leads and apply the cassette loading belt.

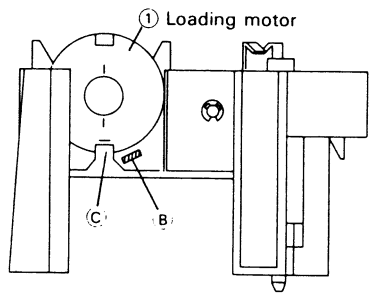
Notes:

1. Be careful not to scratch the gear.
2. Be careful not to stain the belt. If dirty, clean it up.

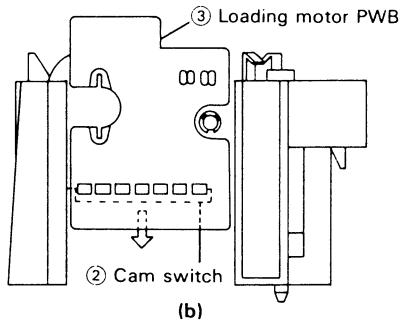
REPLACEMENT OF LOADING MOTOR

- **Removal**

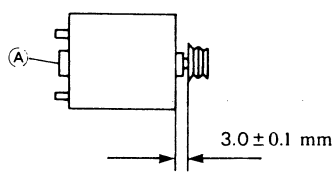
1. Remove the loading block.
2. Undo the loading belt.
3. Unsolder the leads from the loading motor ①.
4. Unlock the left and right catches of the cam switch ② off the loading block. Take out the loading block PWB ③.



(a)



(b)



(c)

Note:

1. Press-fit the loading motor pulley to the dimension specified in Fig. 1-33(c).
2. Keep the pressure on the part Ⓐ (see above) less than 5 kg.

Figure 1-33.

5. Put the tip of a bladed screwdriver or the like into the opening Ⓑ shown in Fig. 1-33 (a). Pry up the back end of the loading motor ① and take out the motor.

- **Reassembly**

1. Place the loading motor so that its label is visible as ahown in Fig. 1-32.
   Note:
   Make sure that the screw hole at the motor shaft and the protuberance on the loading block are properly engaged and that the notch at the loading motor end and the part Ⓒ of the loading block are also fitted together.
2. Set up the loading block PWB ③ and the cam switch ② in position.
3. Resolder the leads to the loading motor.
4. Finally place the loading block in position.

REPLACEMENT OF MASTER CAM

- **Removal**

1. Remove the loading block.
2. Remove the E ring Ⓐ and then the half-loading reciprocating lever ①.
   Note:
   There is no need to take out the half-loading drive lever.
3. Remove the E ring Ⓑ first and then the pinch roller lever ②.
4. Finally pull out the master cam ③ upward.

- **Reassembly**

1. Place the relay gear drive lever in the unloading state as shown in Fig. 1-31.
2. Set the relay shifter lever ④ to the main chassis; the shifter lever should be adjusted to the reverse guide spring hole in the main chassis. Then place the master cam so that the cut-off part of the boss Ⓒ should face the direction of arrow ⇒ Ⓔ.
3. Place the half-loading reciprocating lever ① so that its cam follower comes in the outermost cam groove. Now attach the E ring Ⓐ.
   Note:
   Preferably hook the half-loading reciprocating spring ⑤ before attaching the lever. It is easier to set up.
4. Turn the master cam ③ somewhat clockwise until the pinch roller lever's cam follower comes into the master cam's groove Ⓓ. Then attach the E ring Ⓑ.
5. Rotate the master cam ③ by hand to make sure all the four levers (relay gear drive lever, relay shifter lever, half-loading reciprocating lever and pinch roller lever) are right in the cam grooves.
6. Finally set up the loading block.

Notes:

1. Be careful not to scratch the teeth and grooves of the master cam.
2. Before placing the loading block, be sure to rotate the master cam by hand to make sure the levers are right in their respective positions. Otherwise the master cam and the levers might get damaged when the motor starts.
3. Apply grease to the master cam's grooves and teeth.

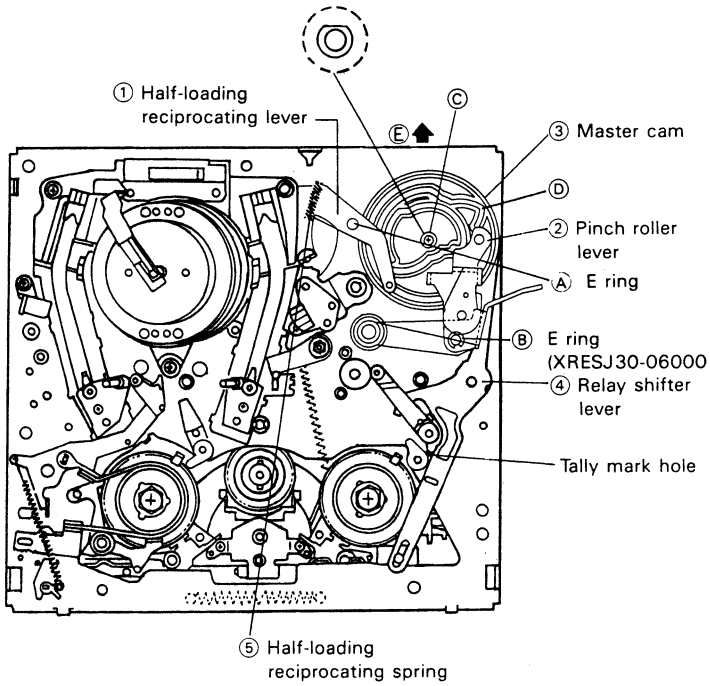


Figure 1-34.

HOW TO UNLOAD THE CASSETTE MANUALLY

1. To unload the cassette the common way.

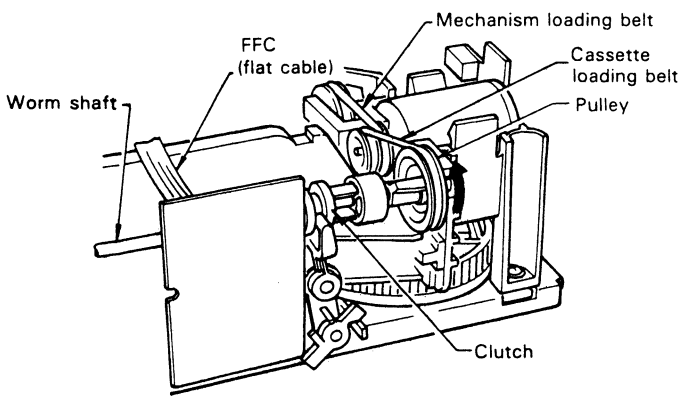


Figure 1-35.

(1) Turn the pulley in the direction of arrow. (By this, the clutch becomes engaged to eject the cassette.)

Notes:

- Do not touch the worm shaft. Just turn the pulley, and the worm shaft will rotate together.
- Carefully turn the pulley if the unit is equipped with the half-loading lever. Otherwise the cassette tape may get loose.

2. To unload the cassette by activating the cassette housing control.

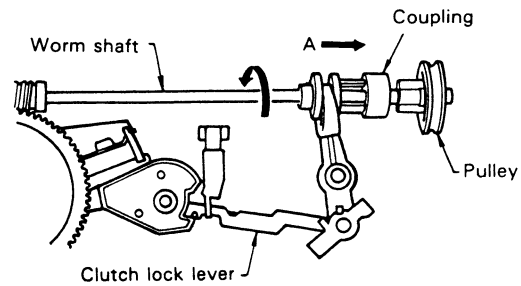


Figure 1-36.

(1) Remove the cassette loading belt.
(2) Turn the coupling in the direction of arrow until the cassette comes up.
(3) Press the clutch in the direction A to get the clutch engaged.
(4) Now turn the worm shaft all the way in the direction of arrow to take out the cassette.

Notes:

- Carefully turn the worm shaft if the unit is equipped with the half-loading lever. Otherwise the cassette tape may become loose.
- If the second method (activating the cassette housing control) is carried out, the cassette housing control and the mechanism come out of phase from each other. Take the following steps to get in phase with the cassette housing control.

(1) Remove the cassette loading belt and the flat cable.
(2) Turn the power on. The mechanism will automatically be in the eject mode and get in phase with the cassette housing control.
(3) Unplug the power cord.
(4) Make sure the cassette housing stays in the eject mode. Apply the cassette loading belt and connect the flat cable.
(5) Plug in the power cord. Finally load the cassette and eject it to make sure the motion is perfect. (This loading and ejection makes for proper phasing.)

- If the tape has not been fully rewound, remove the bottom panel of the unit and turn the capstan D.D. motor rotor or the reel pulley in the direction of arrow B to wind up the tape.
  Now you can take out the cassette without damaging the tape.
- Before taking the above measure, be sure to unplug the power cord.

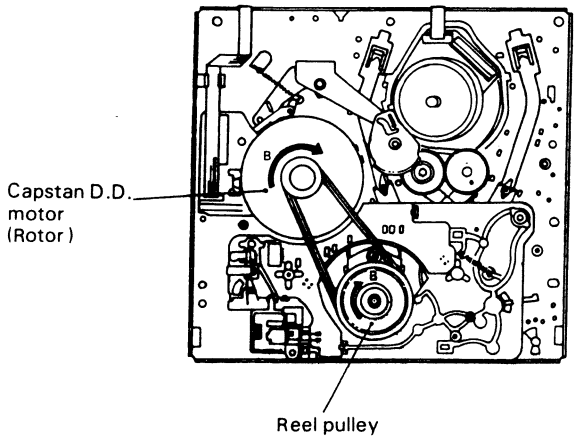


Figure 1-37.

ADJUSTMENT OF ELECTRICAL CIRCUITRY

Prior to the adjustment:
In most cases, necessity for electrical circuits will arise from replacement of mechanical parts including the video head. Before starting adjustment of electrical circuits, check that mechanical operation of the equipment is complete (the mechanism are adjusted completely).

If the equipment fails electrically, locate a defect or defects first of all using instruments. Then repair or replace parts and make adjustment by the procedures described below.
When required instrumetns are not available, do not move controls indiscriminately.

- Instruments
  - Color monitor TV
  - DC regulated power supply
  - VTVM
  - Oscilloscope
  - Audio generator
  - Color bar generator
  - Alignment tape
  - Frequency counter
  - Blank video tape(VHS)

ADJUSTMENT OF MAIN (SERVO, SYSTEM CONTROL, TUNER) CIRCUIT

- Test points layout

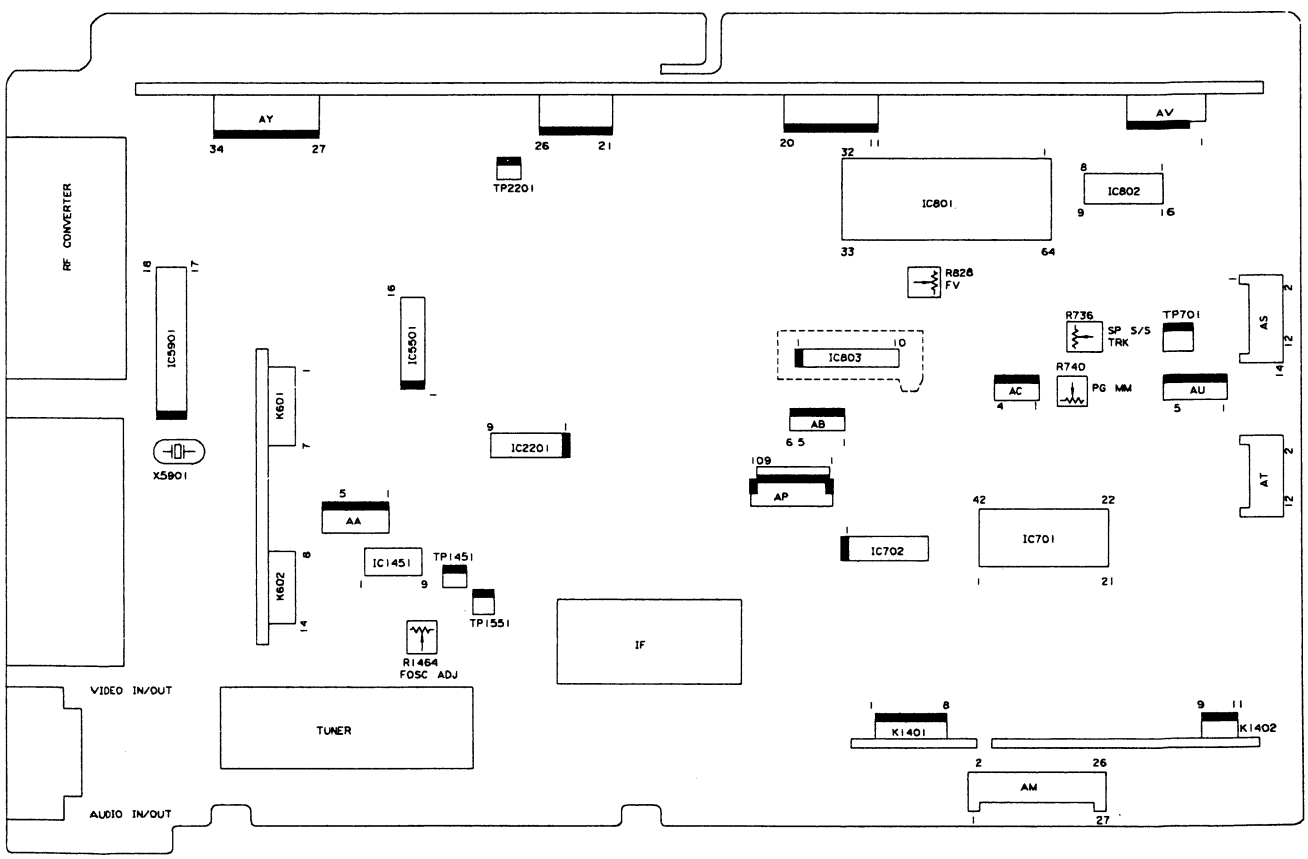


Figure 2-1. MAIN PWB

ADJUSTMENT OF SERVO CIRCUIT

Adjustment of playback switching point

Measuring instrument	Oscilloscope
Mode	Playback Tracking button at center
Tape used	Alignment tape (VROCPSV)
Test point	CH-1; TP701 CH-2; Video output terminal (CH-1 trigger slope switch at(+), Internal trigger at CH-1 side)
Adjusting point	R740(phase generator MM control)
Specification	6.5 ± 0.5H

1. Insert the alignment tape (VROCPSV) and put the unit in the playback mode.
2. Set the tracking button to the center position.
3. Adjust R740 (phase generator MM control) so that the waveform on the oscilloscope screen be as shown in Fig. 2-2.

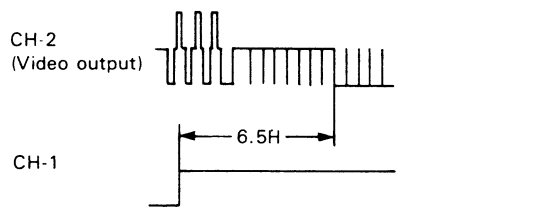


Figure 2-2.

Adjustment of SP slow tracking

Measuring instrument	Monitor TV
Mode	Record time switch at sp Position. Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal (external input selector switch)
Test Point	Monitor screen
Adjusting point	R736 (SP slow tracking control)
Specification	No noise bar on the monitor TV screen

1. Receive a commercial broadcast signal, or feed the video signal to the video input terminal (with the external input selector switch).
2. Set the record time switch to the SP position. Make recording and playback on the self-recording tape.
3. Press the slow button and play back the recorded portion in the slow mode.
4. Set the tracking button to the center position.
5. Observing the monitor screen, adjust the SP slow tracking preset control (R736) until the noise bar disappears form the screen.
6. Press the playback button to play back the tape. Then push the pause/still button to reproduce the recording in the still mode. Now make sure there is no noise on the screen. (Repeat this step three times or so.)

Adjustment of still picture vertical sync

Measuring instrument	Monitor TV
Mode	Still picture playback
Tape used	Self-recording tape
Test point	Monitor screen
Adjusting point	R828 (still picture vertical sync control)
Specification	No vertical jitter

1. Play back the tape self-recorded in the SP mode.
2. Press the pause/still button to reproduce the recording in the still mode.
3. Observing the monitor screen, adjust the still picture vertical sync control (R828) until the vertical jitter disappears form the screen.

Precaution in adjusting the X position

Measuring instrument	Oscilloscope
Mode	Playback
Tape used	Alignment tape(VROCPSV)
Test point	Pin ② of TP701 (tracking monitor output)
Adjusting point	————
Specification	T = 14.78 ± 0.46 msec.

1. Insert the alignment tape (VROCPSV) and put the unit in the palyback mode.
2. Set the tracking button to the center position.
3. Make sure that the "H" level time (T) at pin ② of TP701 (tracking monitor output) is 14.78 ± 0.46 msec. Now go to the X position adjustment.

Tracking monitor output (TP701)

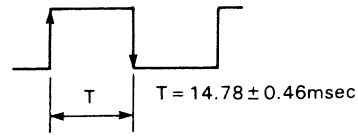


Figure 2-3.

ADJUSTMENT OF Y/C CIRCUIT

- Test point layout

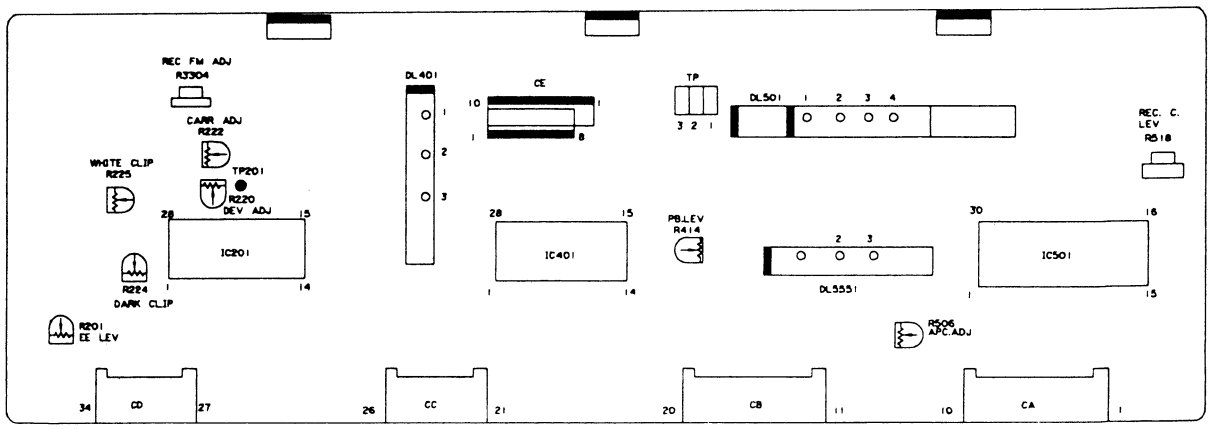


Figure 2-4. Y/C PWB

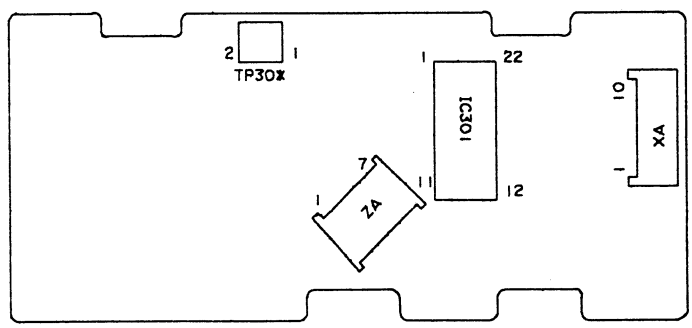


Figure 2-5. HEAD AMP PWB

■ ADJUSTMENT OF Y/C RECORDING CIRCUIT

Adjustment of EE level

Measuring instrument	Oscilloscope
Mode	SP recording
Input signal	Standard color bar (stair-case waveform)
Test point	Video output terminal
Adjusting point	R201 (EE level control)
Specification	1.0 ± 0.05 Vp-p

Note:
The video output terminal should be terminated with a 75-ohm impedance.

1. Set the unit to the SP record mode.
2. Feed the color bar signal(stair-case waveform)to the video input terminal. Observing the voltage across the terminal resistor of the video output terminal on the oscilloscope screen, adjust R201 (EE level control) to obtain the value indicated in Fig. 2-6.

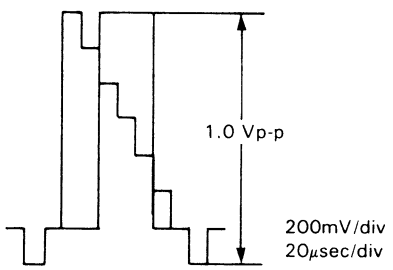


Figure 2-6.

Ajustment of FM 3.8 MHz and 4.8 MHz

Measuring instrument	Frequency counter	Oscilloscope
Mode	Recording	Self-recording / playback
Input signal	External input (no signal)	Standard color bar (stair-case waveform)
Test point	Pin (28) of IC201	Video output terminal
Adjusting point	R222 (FM carrier control)	R220 (deviation control)
Specification	3.8 MHz	1.0 ± 0.05 Vp-p

Note. 1:
Carry out this adjustment only when IC201 has been replaced or when the carrier setting (3.8 MHz) or the deviation (4.8 MHz) is found apparently out of specification.

Make this adjusment after the EE level has been completely adjusted.

Note. 2:
The video output teminal should be terminated with a 75-ohm impedance.

1. First make sure that the EE level playback video signal is at the speciffied level.
2. Place the unit in the record mode and get it ready for external input.
   Note:
   Do not connect anything to the external input terminal.
3. Hook up the frequency counter to pin (28) of IC201. Adjust R222 (FM carrier control) so that the counter reading be 3.8 MHz.
   Note:
   Make sure the white and dark clip controls are not now applied to the waveform.
4. Feed the color bar signal (stair-case waveform) and make self-recording and playback.
5. Observe the video output terminal voltage (across the terminal resistor) on the oscilloscope screen. If the playback video signal level is below 1.0 Vp-p, turn R220 (deviation control) clockwise. If above 1.0 Vp-p, turn the control counterclockwise. Now make self-recording and playback again.
6. Repeat the above step 5 to finally get the playback video signal level at 1.0 ± 0.05 Vp-p, as shown in Fig. 2-5.

Adjustment of white clip

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	Standard color bar (stair-case waveform)
Test point	TP201
Adjusting point	R225 (white clip control)
Specification	$80\ ^{+\ 0}_{-\ 4}$ %

1. Place the unit to the record mode.
2. Feed the color bar (stair-case waveform) signal.
3. Observing the output at TP201, adjust R225 (white clip control) so that the white peak overshoot be 80+0−4%.

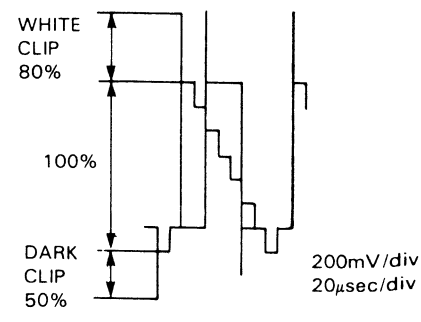


Figure 2-7.

Adjustment of dark clip

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	Standard color bar (stair-case waveform)
Test point	TP201
Adjusting point	R224 (dark clip control)
Specification	50 ± 4%

1. Place the unit to the recording mode.
2. Feed the color bar (stair-case waveform) signal.
3. Observing the output at TP201, adjust R224 (dark clip control) so that the dark peak overshoot be 50 ± 4%. (See fig. 2-7.)

Adjustment of recording current

Measuring instrument	Oscilloscope	
Mode	Recording	
Input signal	Standard color bar (stair-case waveform)	
Test point	TP301 (GND at TP302) External trigger (video output terminal)	
Adjusting point	R3304 (recording FM control)	R518 (recording chroma control)
Specification	Sync tip level 100 ± 10mVp-p	Red level 20 ± 1mVp-p

Note:
TP301 and TP302 are located on the head amp PWB.

1. Place the unit to the record mode.
2. Feed the color bar (stair-case waveform) signal.
3. Observing the waveform on the oscilloscope screen (external trigger at video output terminal), take the following steps.
   a) Connect the oscilloscope's GND and SIG leads to TP302 and TP301, respectively.
   b) Turn R3304 (recording FM control) to minimum.
   c) Ajust R518 (recording chroma control) to that the red level be 20 ± 1mVp-p as shown in Fig.2-8.
4. Adjust R3304 (recording FM control) so that the sync tip be 100 ± 10mVp-p as shown in Fig.2-9.

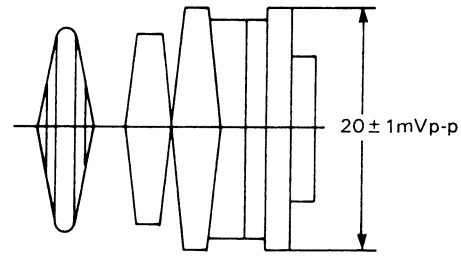


Figure 2-8.

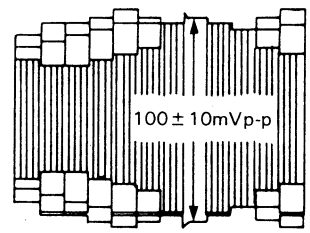


Figure 2-9.

■ ADJUSTMENT OF Y/C PLAYBACK CIRCUIT

Adjustment of playback video signal level

Measuring instrument	Oscilloscope
Mode	Playback
Tape used	Alignment tape (stair-case waveform)
Test point	Video output terminal
Adjusting point	R414 (playback level control)
Specification	1.0 ± 0.05Vp-p

Note:
The video output terminal should terminated with a 75-ohm impedance.

1. Insert the alignment tape (stair-case waveform) and place the unit to the playback mode.
2. Hook up the oscilloscope to the video output terminal. Adjust R414 (playback level control) so that the on-screen waveform be 1.0 ± 0.05Vp-p.

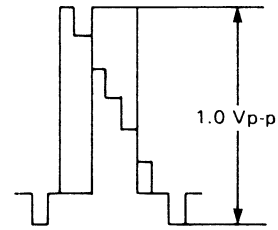


Figure 2-10.

Adjustment of APC

Measuring instrument	Frequency counter
Mode	Playback
Tape used	Alignment tape (VROCPSV)
Test point	Pin ⑦ of CA connector
Adjusting point	R506
Specification	4.433619MHz ± 50Hz

1. Insert the alignment tape (VROCPSV) and place the unit to the playback mode.
2. Connect the frequency counter to pin ⑦ of CA connector. Adjust R506 (APC control) so that the counter reading be 4.433619MHz ± 50Hz.

ADJUSTMENT OF AUDIO CIRCUIT

- **Test point layout**

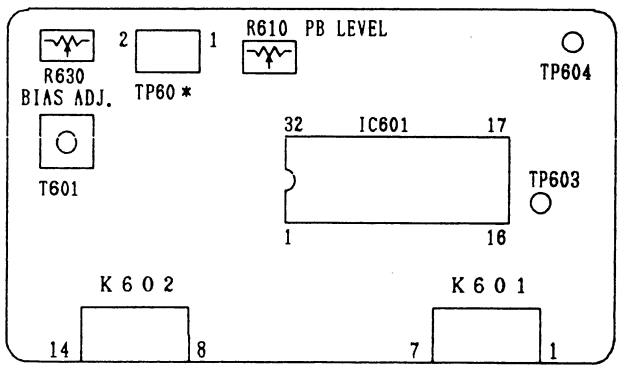


Figure 2-11. AUDIO PWB

Adjustment of playback level

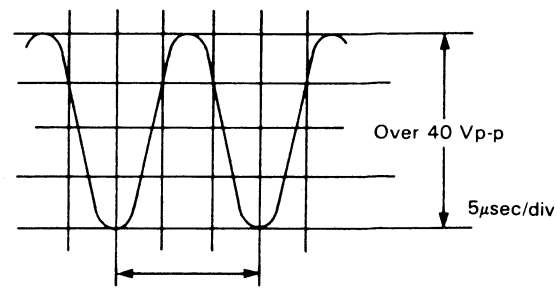
Measuring instrument	VTVM
Mode	Playback
Input signal	Alignment tape (VROCPSV) (1-kHz level control signal)
Test point	Audio output terminal
Adjusting point	R610 (playback level control)
Specification	-9 ± 0.5dBm

1. Play back the alignment tape (1-kHz level control signal).
2. Hook up the VTVM to the audio output terminal.
3. Adjust R610 (playback level control) so that the output level be -9 ± 0.5dBm.

Checking of erase voltage and oscillation frequency

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	———
Test point	Both ends of the full-erase head
Adjusting point	———
Specification	Erase voltage; Over 40 Vp-p Oscillation frequency; 70 ± 7kHz

1. Place the unit to the record mode.
2. Hook up the oscilloscope to both ends of the full-erase head.
3. Make sure the erase voltage is over 40 Vp-p.
4. Be sure that the oscillation frequency is 70 ± 7kHz.



63 kHz to 77 kHz about three divisions

Figure 2-12.

Adjustment of bias current

Measuring instrument	VTVM
Mode	Recording
Input signal	———
Test point	TP601 (SIG), TP602 (GND)
Adjusting point	R630 (bias current control)
Specification	260 ± 10 μA

1. Place the unit to the record mode.
2. Connect the VTVM to TP601 (SIG) and TP602 (GND).
3. Adjust R630 (bias current control) so that the bias current be 260 ± 10 μA (2.6 ± 0.1mV).

Checking of recording level

Measuring instrument	VTVM
Mode	Self-recording/playback
Input signal	1 kHz/−8 dBm
Test point	Audio output terminal
Adjusting point	————
Specification	−5 ± 3 dBm

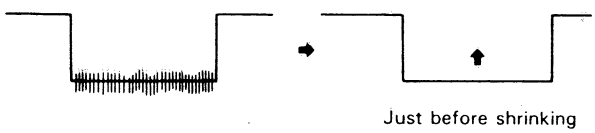
1. Feed 1 kHz, −8 dBm signal to the audio input terminal. Make self-recording and playback of the signal.
2. Make sure the output at the audio output terminal is −5±3 dBm.
3. If out of spec, readjust the playback level and the bias current.

ADJUSTMENT OF IF CIRCUIT

Adjustment of RF AGC

Measuring instrument	Oscilloscope Signal generator
Mode	————
Input signal	Color bar signal
Test point	Video output terminal
Adjusting point	VR001 (RF AGC)
Specification	————

1. Receive the color bar signal (input field strength: 80 dBμ).
2. Observe the video output terminal waveform on the oscilloscope. Adjust VR001 (RF AGC) in the IF pack until the noise disappears from the oscilloscope screen and the waveform nearly comes into sync.



Just before shrinking

Figure 2-13.

Adjustment of AFT

Measuring instrument	Oscilloscope Signal generator
Mode	————
Input signal	PIF frequency uniwave 38.9 MHz ± 1 kHz (VC-B370N) 39.5 MHz ± 1 kHz (VC-A505W) Color bar signal (70dBμ)
Test point	Video output terminal
Adjusting point	T002 (AFT coil)
Specification	————

1. Receive the color bar signal (input field strength: 70 dBμ).
2. First set the band selector switch to VHF or UHF (VC-B370N), VHF only (VC-A505W) position. Using the signal generator, feed the 38.9 MHz (VC-B370N), 39.5 MHz (VC-A505W) PIF frequency signal (sine wave) to the tuner IF output terminal. Use the (−) and (+) keys so that the video output terminal waveform be minimum.
3. Set the band selector switch NORMAL position.
4. Using the signal generator, feed the 38.9MHz ± 1KHz(VC-B370N), 39.5MHz ± 1KHz (VC-A505W) PIF frequency signal (sine wave) to the tuner IF output terminal. (Adjust the attenuator to attenuate the input signal down to an appropriate level).
5. Adjust T002 (AFT coil) in the IF pack so that the video output terminal waveform be minimum.

Adjustment of PLL frequency of H-sync ID circuit (R1464)

Measuring instrument	Frequency counter
Mode	————
Input signal	Video signal
Test point	TP1451
Adjusting point	R1464
Specification	15.625 kHz ± 50 Hz

1. Connect the frequency counter to pin ③ of TP1451 with a buffer in between, as shown in Fig. 2-14.
2. Add a 1 μF/50V capacitor between pin ① (video signal) and pin ② (GND) of TP1451, as shown in Fig. 2-14. (Disconnect this capacitor after the adjustment.)
3. Turn R1464 until the frequency counter reads 15.625 kHz ± 50 Hz.

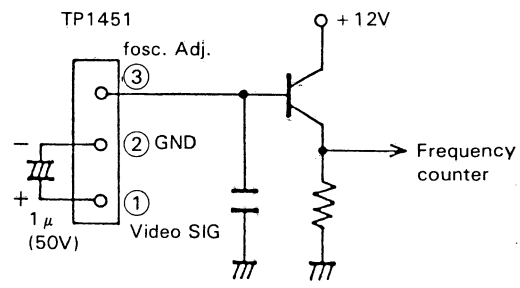


Figure 2-14. Buffer Circuit

TROUBLESHOOTING GUIDE

■ TROUBLES OF CONTROL SYSTEM (SERVO, SYSTEM CONTROLLER CIRCUIT)

No.	Problems	Probable causes and countermeasures
1.	No power is supplied.	• The fuse is blown out; check if there occurs a shortcircuit in the internal circuit. • Check if there are produced AT5V, Motor 12V and AT9V in the power circuit; if not, this means that the power circuit is defective. • Check if the system controller (IC801) is normally functioning; check if there are produced reset signals (ACL) at pin **45** of IC801 and clock signal at pins **46** and **47** of IC801. • Check if the power control signal (Low level) goes out of pin **19** of IC801.
2.	No operation is available.	• Check if the end sensor signal (cassette housing side) and start sensor signal are applied to pins **56** and **57** of IC801 respectively. • Check if the unit is in timer mode. • Check if the unit is in sensor stop mode. • The cam switch is poorly adjusted for its positioning.
3.	After tape lading, the unit is stopped with the tape kept wound over the drum, or the cassette can't be ejected.	• The cam switch is poorly adjusted for its positioning. • IC803 is defective.
4.	The unit will stop immediately after it is set in playback or record mode.	• Check if the head switching pulse is applied to pin **3** (for the drum sensor) of IC801. • Check if the drum motor is rotating. • Check if the drum pulse generator's signal is applied to pin **4** of the servo circuit IC701
5.	The unit will stop a few seconds after it has been set in playback or record mode.	• Check if the reel sensor pulse is applied to pin **58** (for the reel sensor) of IC801. • Check if the reel motor is rotating. • Check if the reel idler is stained or defective.
6.	The tape is not running (the tape is not taken up).	• The reel idler is defective. • The reel brake is defective.
7.	• The unit stops sometimes during playback or recording. • The tape can't be taken up when tape unloading. • The tape is scratched when it is wound. • Video search is impossible.	• Check if there are produced capstan motor control signals at the system controller (servo clock signal **38** of IC801, servo data signal at **39** of IC801, capstan motor pull up signal at pin **29** of IC801, capstan motor unloading signal at pin **39** of IC801, loading motor control forward signal at pin **63** of IC801, cassette and loading motors revese control signal at pin **62** of IC801). • The video search circuit is defective. • IC701 and IC702 are defective.
8.	Fine noises appear at the reproduced picture.	• The playback phase generator MM control is misadjusted (R740).

No.	Problems	Probable causes and countermeasures
9.	Noises appear intermittently at the reproduced picture.	• Check for capstan servo circuit (capstan frequency generator's signal at pin **11** of IC701 and playback control signal at pin **42** of IC701)
10.	The picture collapses in the horizontal direction.	• The drum servo circuit is defective. • Check if there are drum frequency generator's signal applied to pin **7** of IC701 and drum phase generator's signal to pin **4** of IC701. • Check if there is reference signal (4.43MHz) at pin **22** of IC701.

- TROUBLES OF SOUND AND REPRODUCED PICTURE (Y/C AND AUDIO CIRCUIT)

No.	Problems		Probable causes and countermeasures
1.	No picture appears.	At E-E mode	• Check if the video signal (E-E signal) is applied to pin **4** of IC201, if the video signal goes out of pin **10**, and if proper voltage is applied to each pin of IC201. • Check if the video signal comes into pin **3** of IC2201 and goes out of pin **8** of IC2201 (in tuner mode). • Check if the E-E (L) signal is at low level at pin **26** of connector AX and pin **7** of IC2201.
		At playback of standard tape.	Make sure that there appears a normal picture at E-E mode. • Check if the playback FM signal is applied to pin **7** of connector CE. • Check if the playback FM signal is applied to pins **19** and **20** of IC301. • Check if Vcc 5V is applied at pin **8** of IC401. • Check if the video signal (demodulator output) is given at pin **16** of IC401. • Check if the video signal is given at pin 1 of IC401. • Check if the base of Q202 is at high level (about 4V).
		At playback of the tape recorded by oneself.	Before this checking, make sure that normal playback is possible with standard tape. • Check if there is FM signal at pin **16** of IC401. • Check if there is video signal at pin **6** of IC201. • Check if there is video signal at pin **10** of IC201.
2.	No colour appears.		• Check if there is chroma signal at pin **30** of IC501. • APC is misadjusted (R506). It is not allowed to readjust them, this means that IC501 is defective. • Check if IC501 is normally functioning.
3.	The picture collapses when the tape recorded by oneself is played back.		• Check if there is a normal voltage at each pin of the head amplifier.
4.	Noises appear on the whole of picture when the tape recorded by oneself is played back.		• Check if there is a normal voltage at each pin of the head amplifier • Check the video head or replace it a new one.

No.	Problems	Probable causes and countermeasures
5.	Noises are noticeable at E-E mode or when the tape recorded by oneself is played back.	• The tuner and/or RF converter are defective. • Check if AT 5V is applied at pin **5** of the RF converter. • Check the coaxial cable between the tuner and the RF converter for breakage. • Disconnect the antenna cable to see if the DC voltage at the tuner's AGC terminal goes above 6V.
6..	Noises appear on the picture when the tape is played back with standard tape.	• Clean the video head or replace it a new one.
7.	There appears no E-E sound.	• First make sure the E-E picture appears as specified.(If not, the muting effect is produced.) • ALC at IC601 operates improperly. • Check if there is audio signal at pin **17** of IC601. • The audio muting circuit is defective.
8.	There appears no sound at playback mode.	• The audio head is defective. • Check if the control signal is applied. (If not, the muting effect is produced.) • Ckeck if playback audio signal is applied to pin **7** of IC601 and goes out of pin **17**.
9.	Sound is distorted.	• The audio head is magnetized or defective. • Bias current is insufficient.
10.	The reasonance in the recording or playback is incorrect.	• The audio head is magnetized or defective. • Bias oscillator circuit is defective.
11.	Recording is impossible.	• Bias oscillator circuit is not normally functioning. • Ckeck if pin **12** of K602 (bias control 9V) is at high level.
12.	Noise and hum appear frequently during playback or recording.	• The audio head is defective.

VC-B370N
VC-A505W

SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET. PARTS MARKED WITH "Δ" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET.
BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

NOTES:

1. *The unit of resistance "ohm" is omitted (k = 1000 ohm, M = 1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *The unit of capacitance "F" is omitted (μ = μF, p = μμF).*
4. *The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *DC voltages are measured between points indicated and chassis ground by VTVM, with AC220V/50Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.*
2. *Voltages are measured with 10000μV B & W or colour signal.*

WAVEFORM MEASUREMENT CONDITIONS:
10000μV 87.5 percent modulated colour ber signal is fed into tuner.

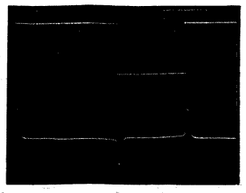
CAUTION:
This circuit diagram is original one. Therefore there may be a slight difference from yours.

WAVE FORMS

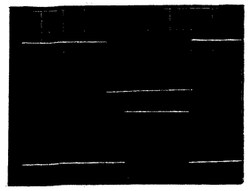
SYSTEM CONTROL, SERVO, IF PWBs

TP701 ① pin
Head switching pulse
2V/Division
5msec/Division
IC701 ㉙ pin
Drum pulse generator
1V/Division
5msec/Division

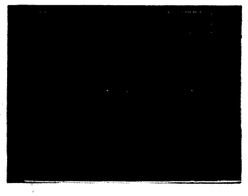
TP701 ① pin
Head switching pulse
2V/Division
5msec/Division
TP701 ② pin
Tracking MM pulse
2V/Division
5msec/Division
— Record mode —



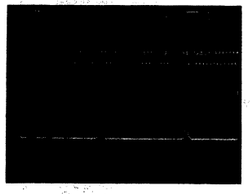
TP701 ③ pin
Playback control pulse
2V/Division
5msec/Division
IC701 ㊷ pin
Playback control signal
500mV/Division
5msec/Division



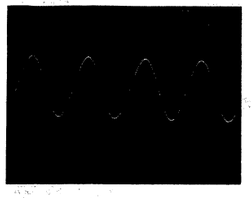
TP701 ① pin
Head switching pulse
2V/Division
5msec/Division
TP701 ② pin
Tracking MM pulse
2V/Division
5msec/Division
— Playback mode —



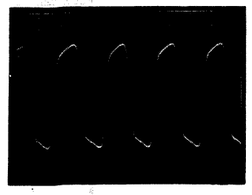
IC701 ㉚ pin
Horizontal sync pulse
1V/Division
5msec/Division



Socket AM ⑨ pin
Drum frequency generator signal
50mV/Division
10msec/Division
Socket AM ⑫ pin
Drum phase generator pulse
200mV/Division
10mV/Division

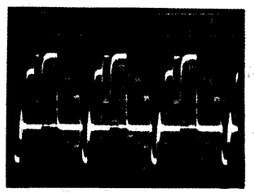


Socket AM ⑮ pin
Capstan frequency generator signal
500mV/Division
0.5msec/Division

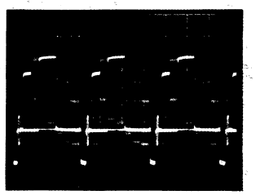


Plug AV ⑧ pin
4.43MHz oscillation signal
200mV/Division
0.1μsec/Division

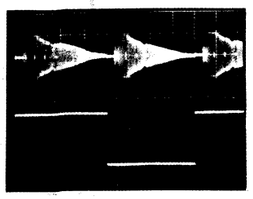
TP2201
Horizontal sync pulse
1V/Division
20μsec/Division
— Record mode —



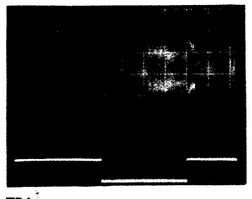
Video output terminal
(Video output is shorted with a 75 ohm resistor.)
Video signal
200mV/Division
20μsec/Division
— Playback mode —



Video output terminal (E-E level)
(Video output is shorted with a 75 ohm resistor.)
Video signal
200mV/Division
20μsec/Division
— Record mode —

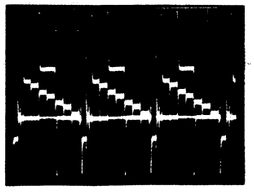


TP1
Playback preamp. signal
200mV/Division
5msec/Division
TP2
Head switching pulse
2V/Division
5msec/Division
— Playback mode —
(Sweep tape)

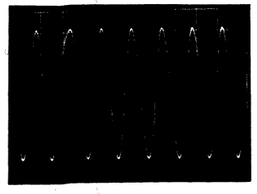


TP1
Playback preamp. signal
50mV/Division
5msec/Division
TP2
Head switching pulse
5V/Division
5msec/Division
— Playback mode —
(color bar)

Y/C, AUDIO PWB

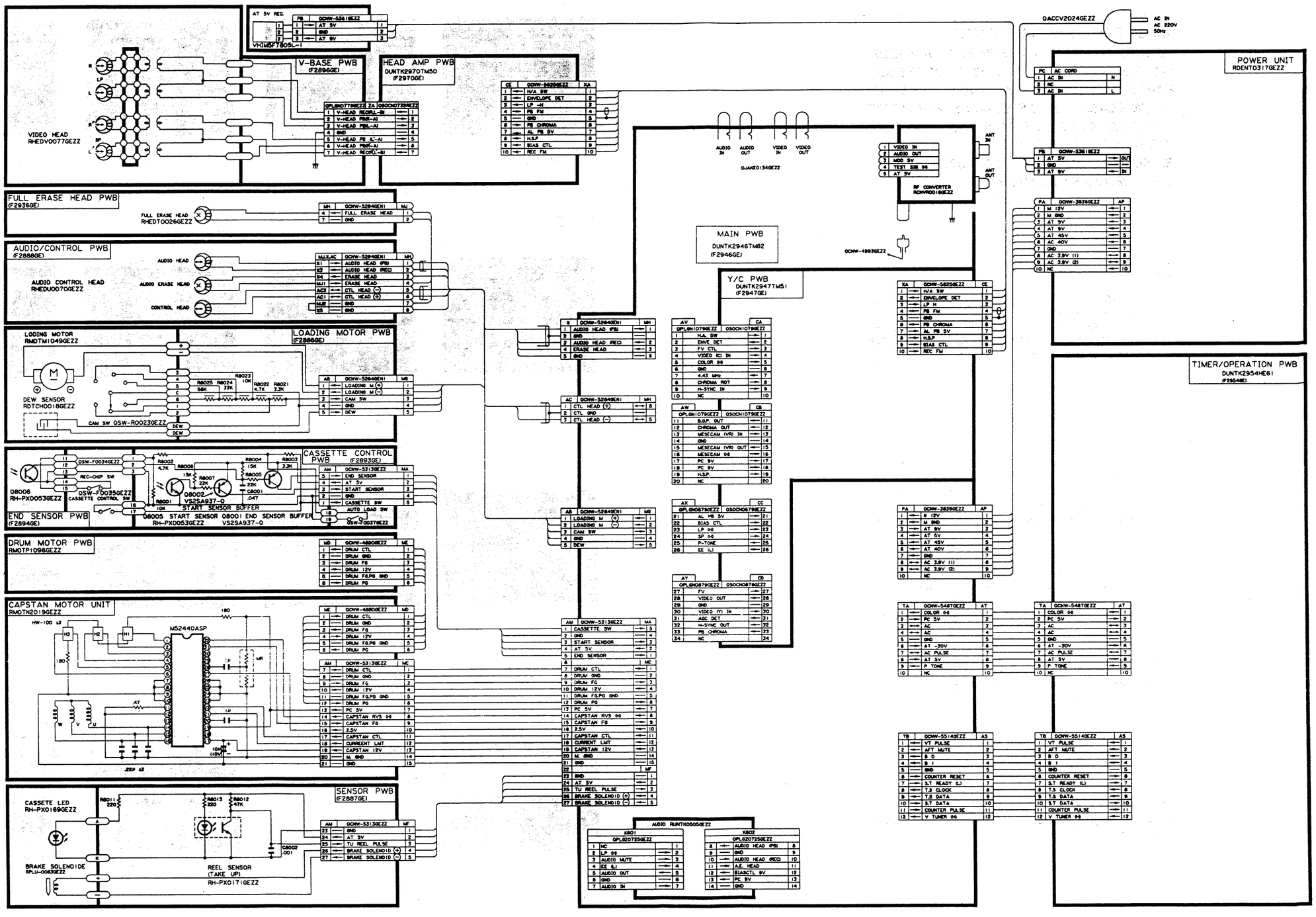


TP201
White/Dark clip signal
100mV/Division
20μsec/Division
— Record mode —

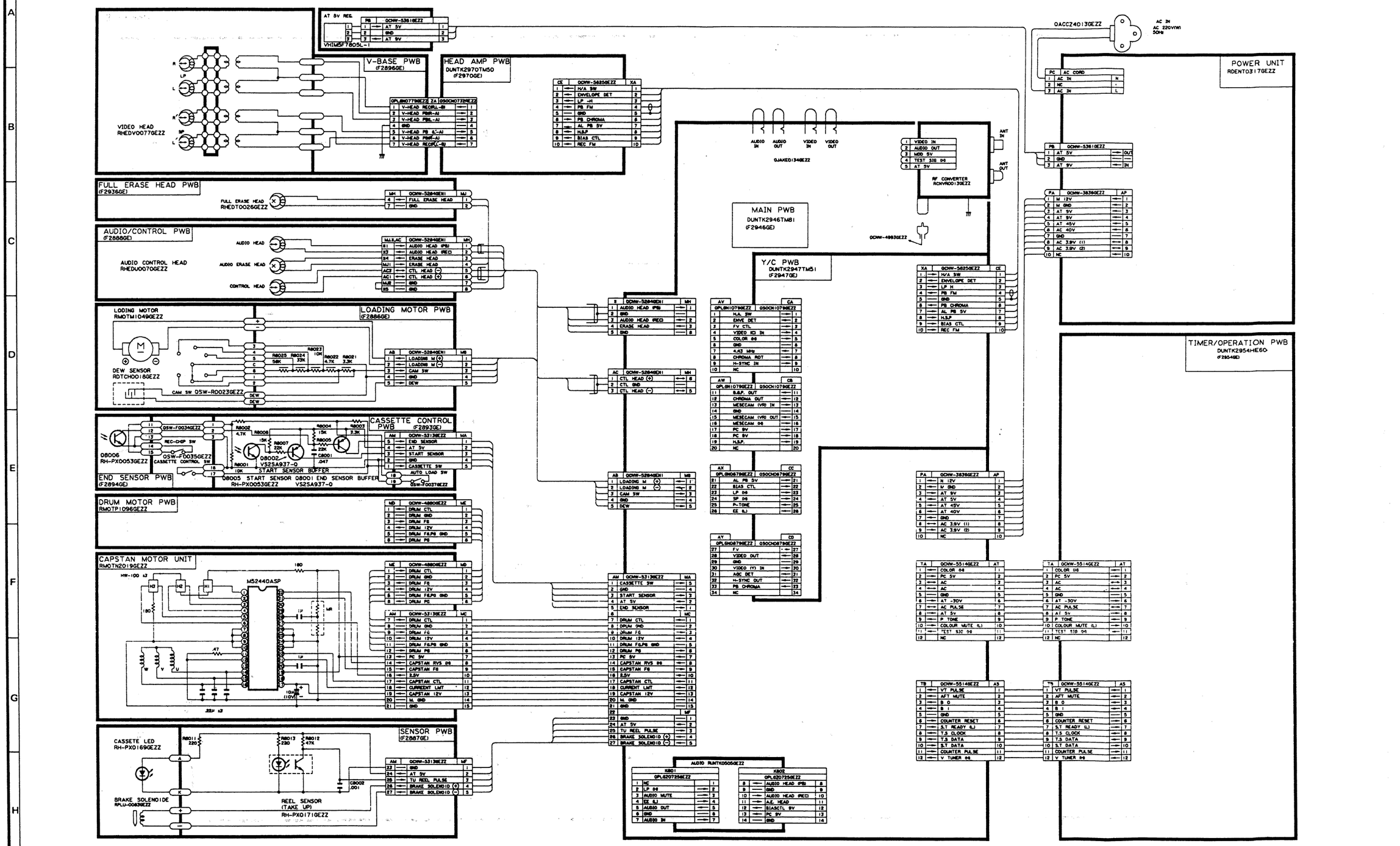


K602 ⑨, ⑪ pin
(Between audio erase head and ground)
10V/Division
10μsec/Division
— Record mode —

OVERALL DIAGRAM (VC-B370N)



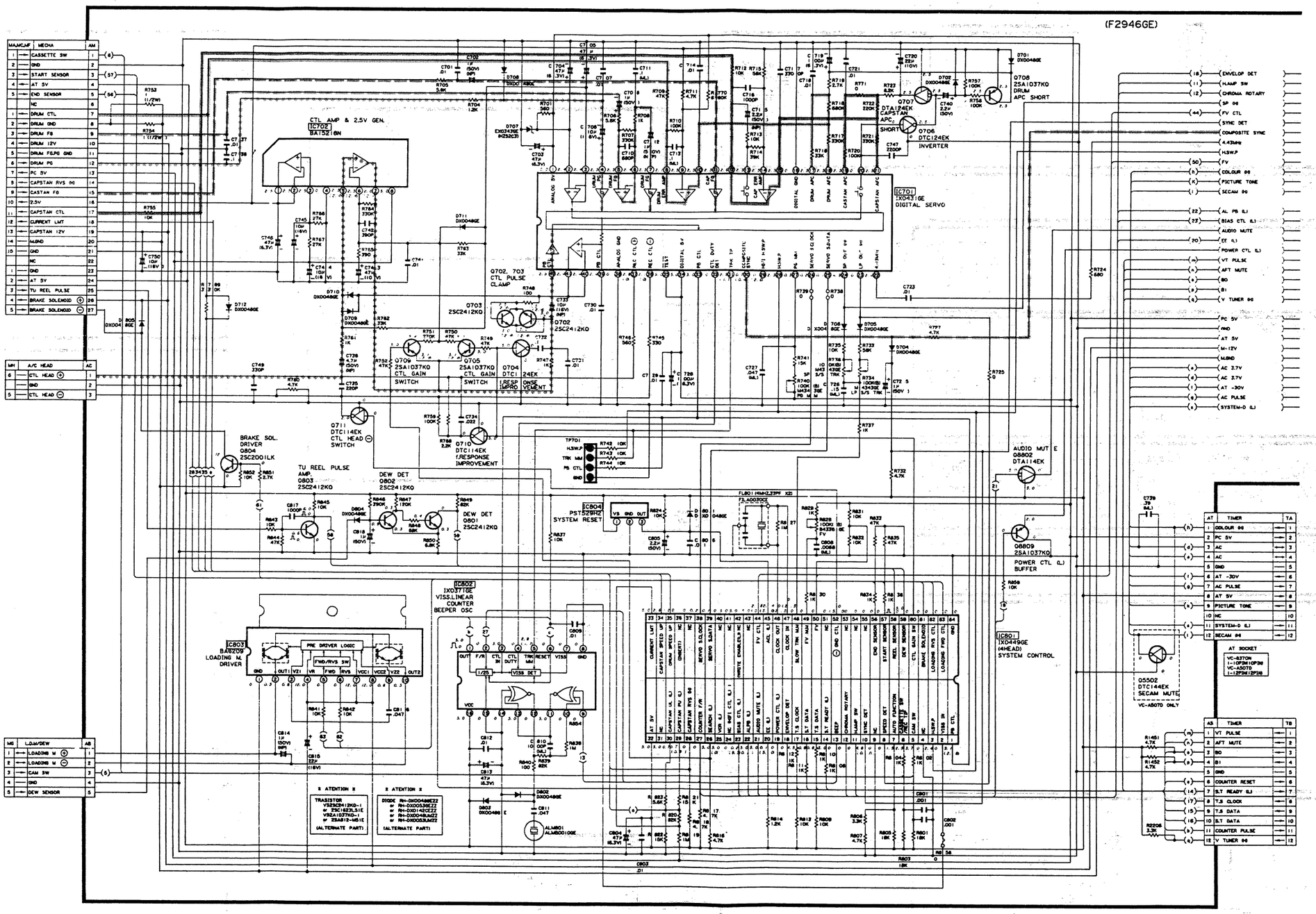
OVERALL DIAGRAM (VC-A505W)



VC-B370N
VC-A505W

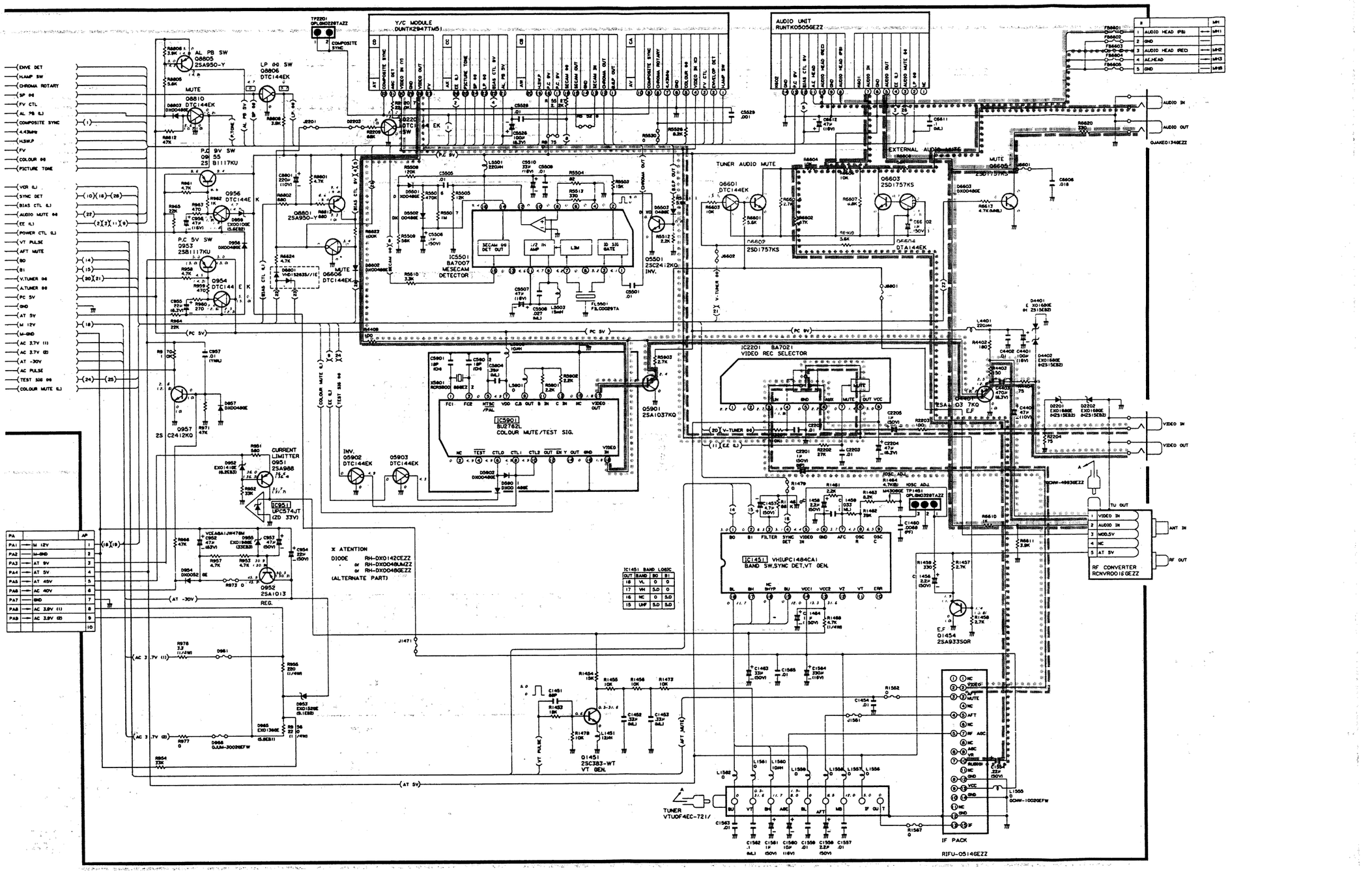
SYSTEM CONTROL, SERVO, IF CIRCUIT (MAIN 1) (VC-B370N)

Reference Signal
Capstan Frequency Comparison Signal
Drum Frequency Comparison Signal
Capstan Phase Comparison Signal (Playback Mode)
Drum Phase Comparison Signal
Capstan Control Signal
Drum Control Signal



SYSTEM CONTROL, SERVO, IF CIRCUIT (MAIN 2) (VC-B370N)

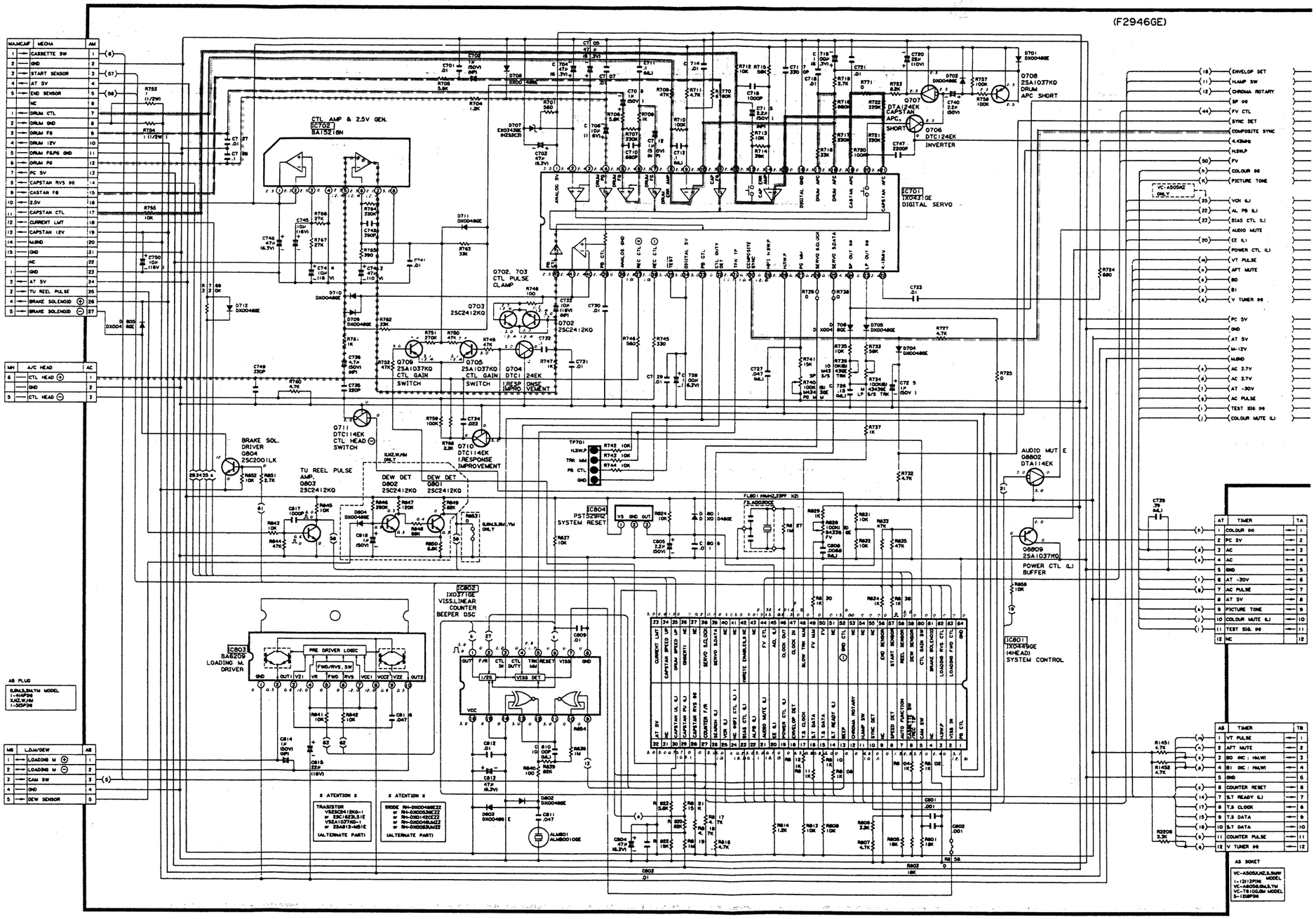
Playback Chrominance Signal
Playback Luminance Signal
Video E-E Signal
Audio Record Signal
Record Luminance Signal
Record Chrominance Signal
Audio E-E Signal
Audio Playback Signal



VC-B370N
VC-A505W

SYSTEM CONTROL, SERVO, IF CIRCUIT (MAIN 1) (VC-A505W)

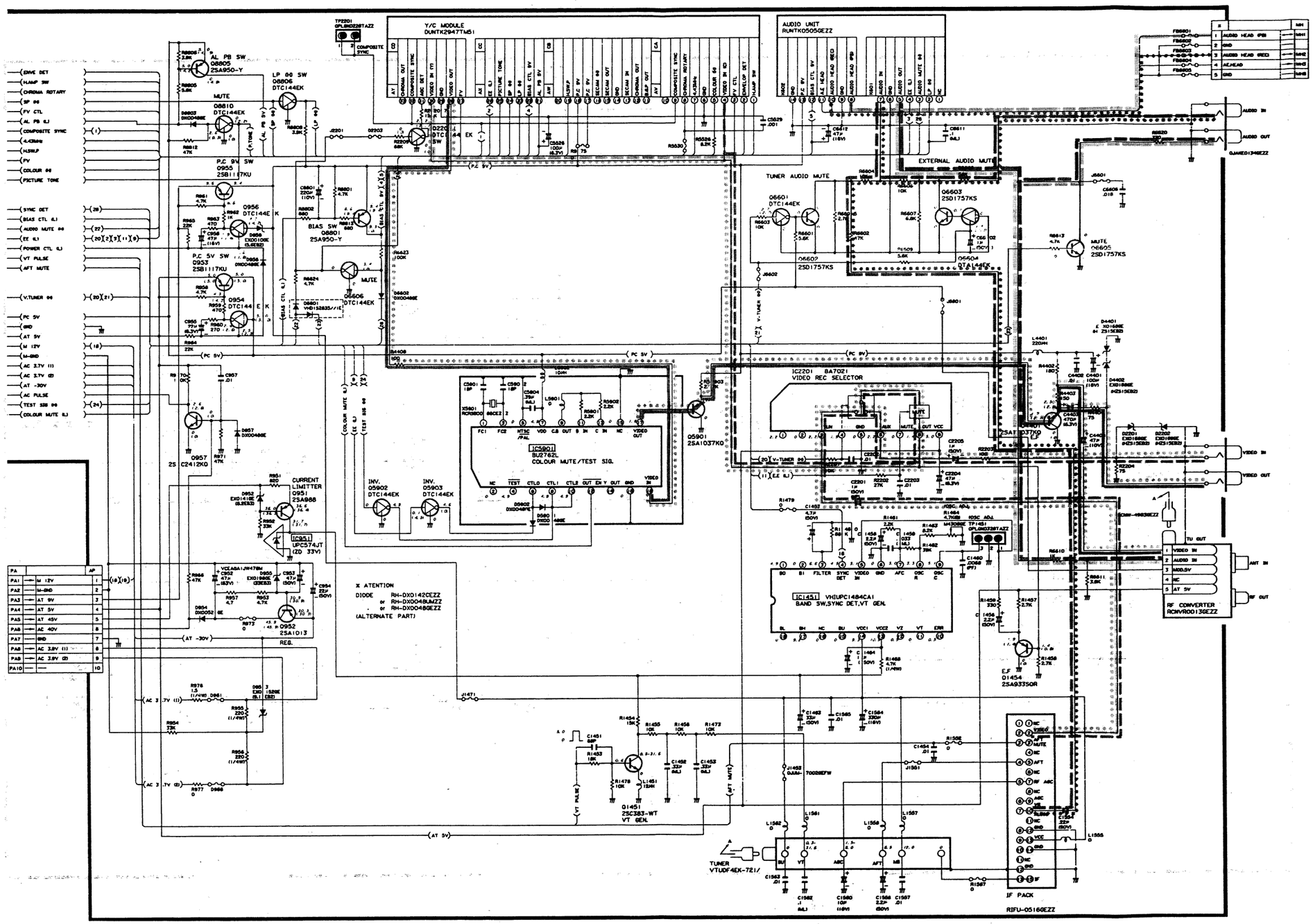
Reference Signal
Capstan Frequncy Comparison Signal
Drum Frequency Comparison Signal
Capstan Phase Comparison Signal (Playback Mode)
Drum Phase Comparison Signal
Capstan Control Signal
Drum Control Signal



VC-B370N
VC-A505W

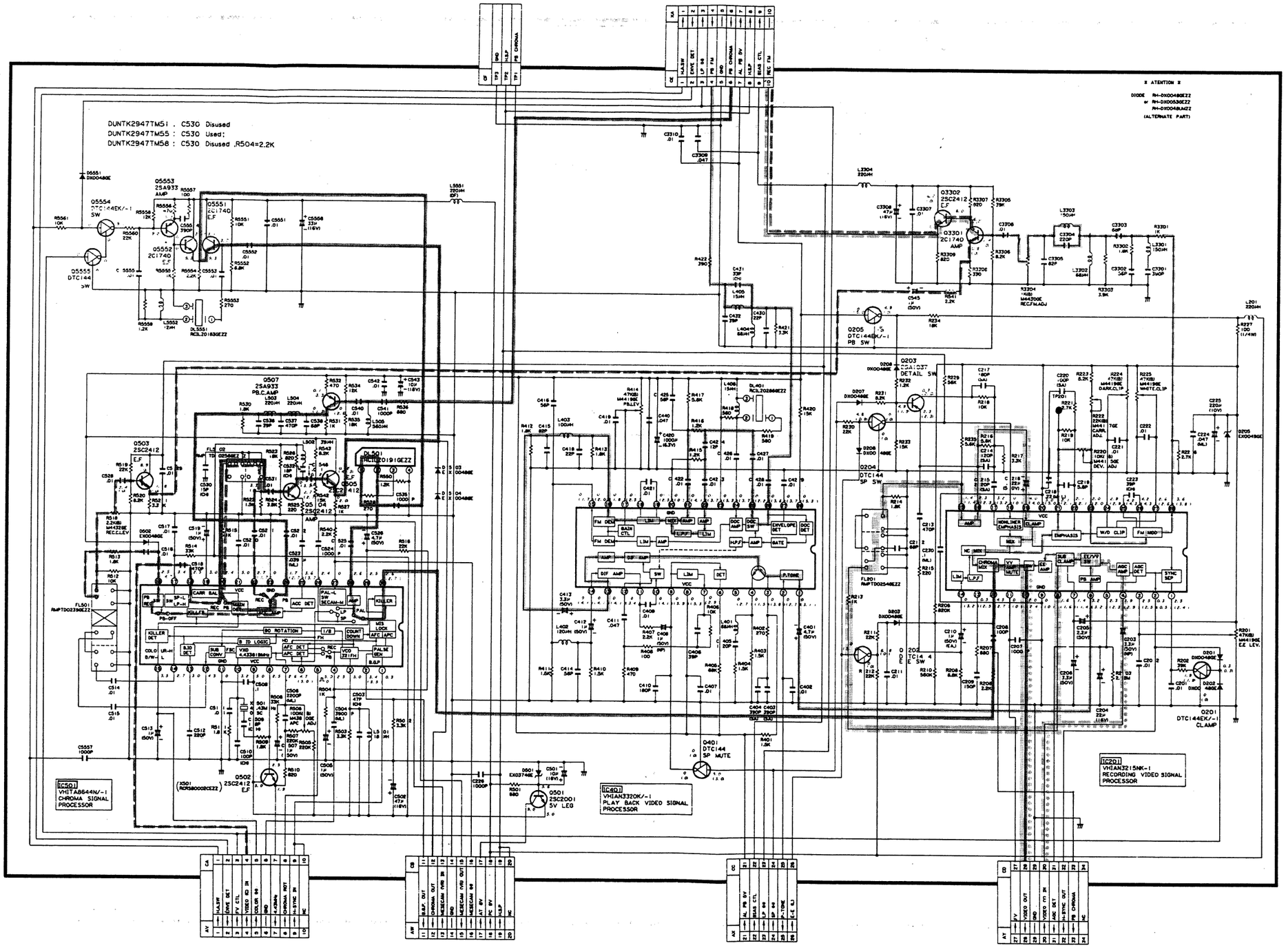
SYSTEM CONTROL, SERVO, IF CIRCUIT (MAIN 2) (VC-A505W)

Playback Chrominance Signal
Playback Luminance Signal
Video E-E Signal
Audio Record Signal
Record Luminance Signal
Record Chrominance Signal
Audio E-E Signal
Audio Playback Signal



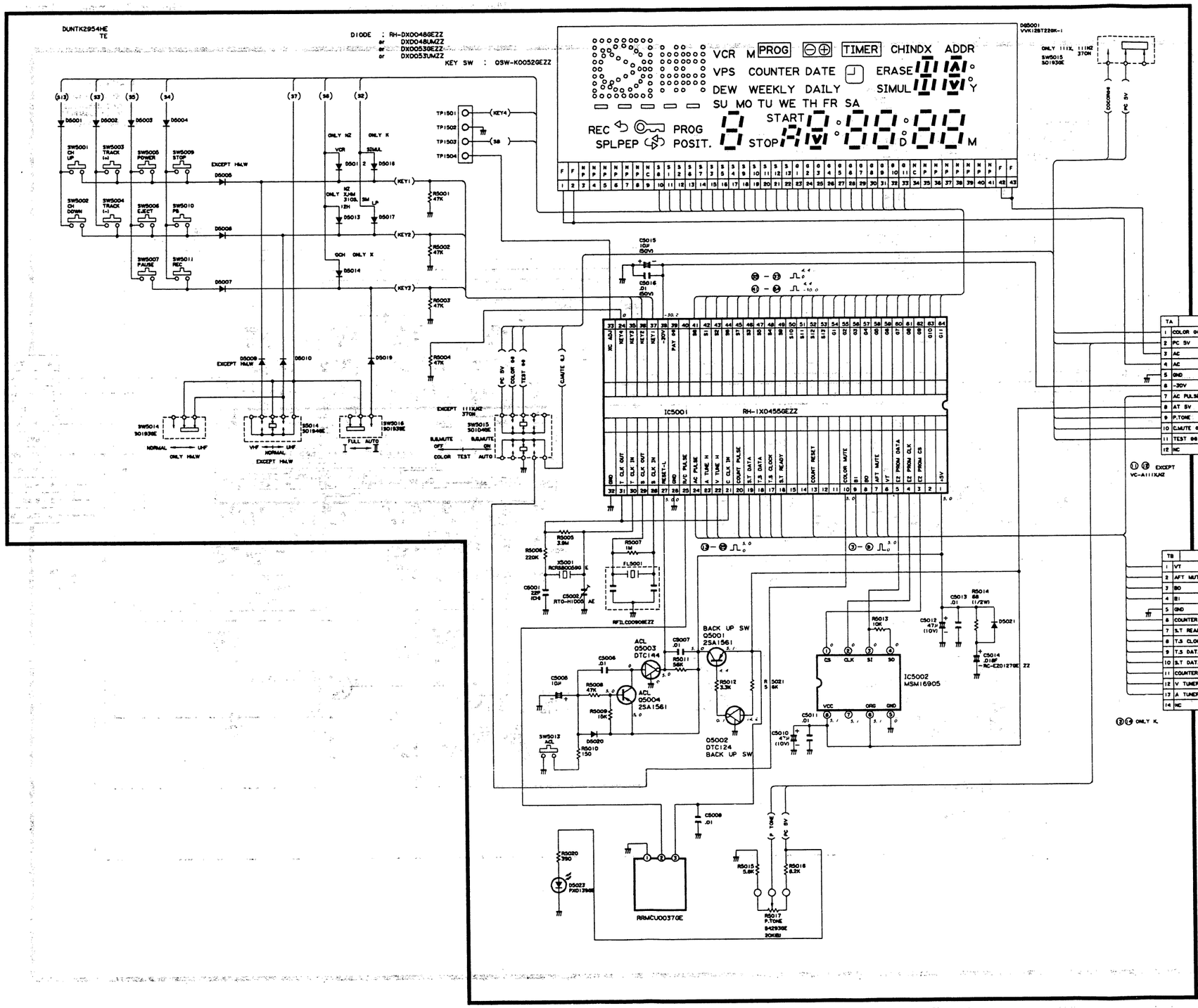
Y/C CIRCUIT

E-E Signal
Record Luminance Signal
Playback Luminance Signal
Record Chrominance Signal
Playback Chrominance Signal



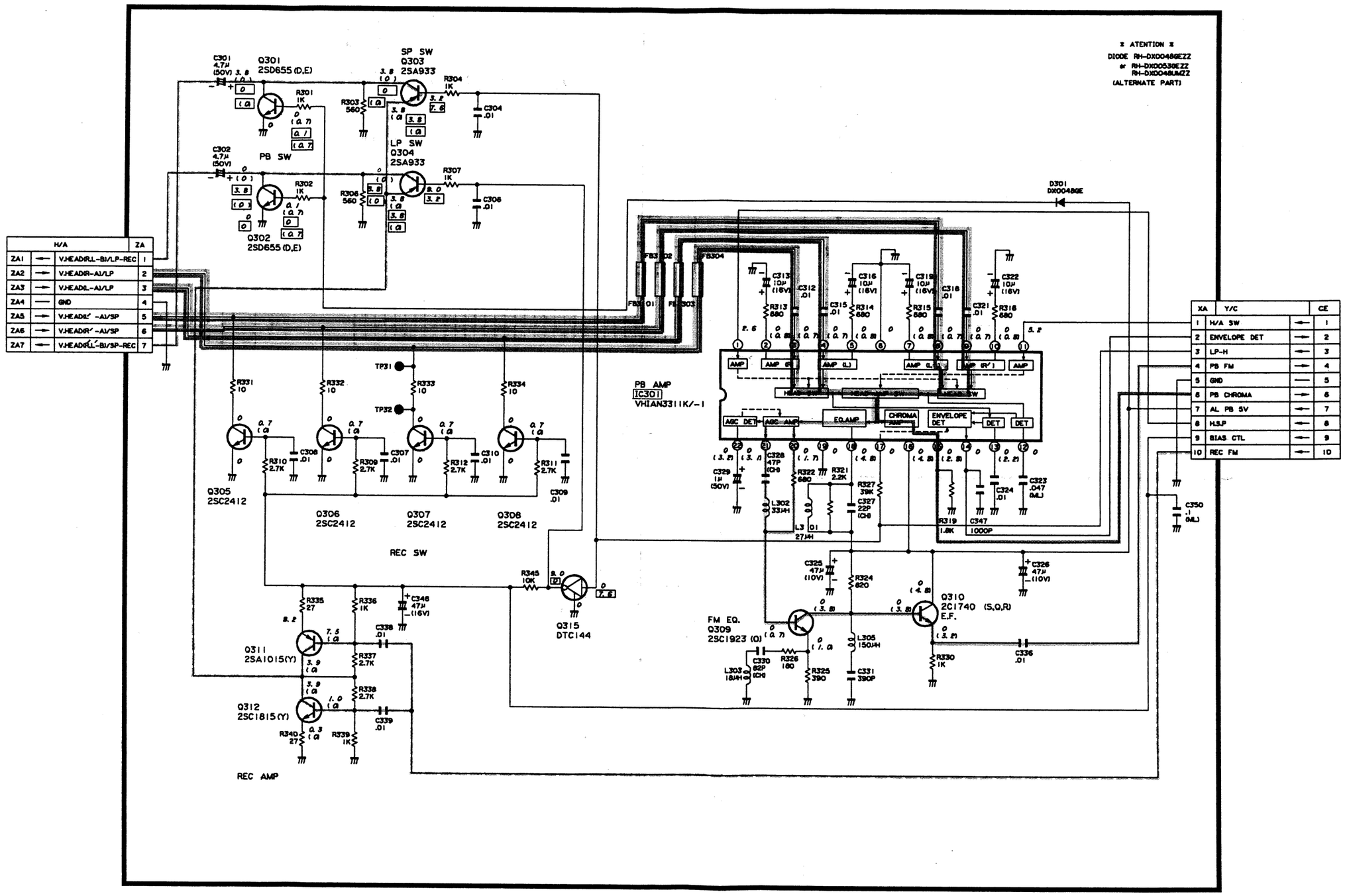
VC-B370N
VC-A505W

TIMER CIRCUIT



HEAD AMPLIFIER CIRCUIT

Playback Luminance Signal
Playback Chrominance Signal
Record Luminance Signal
Record Chrominance Signal

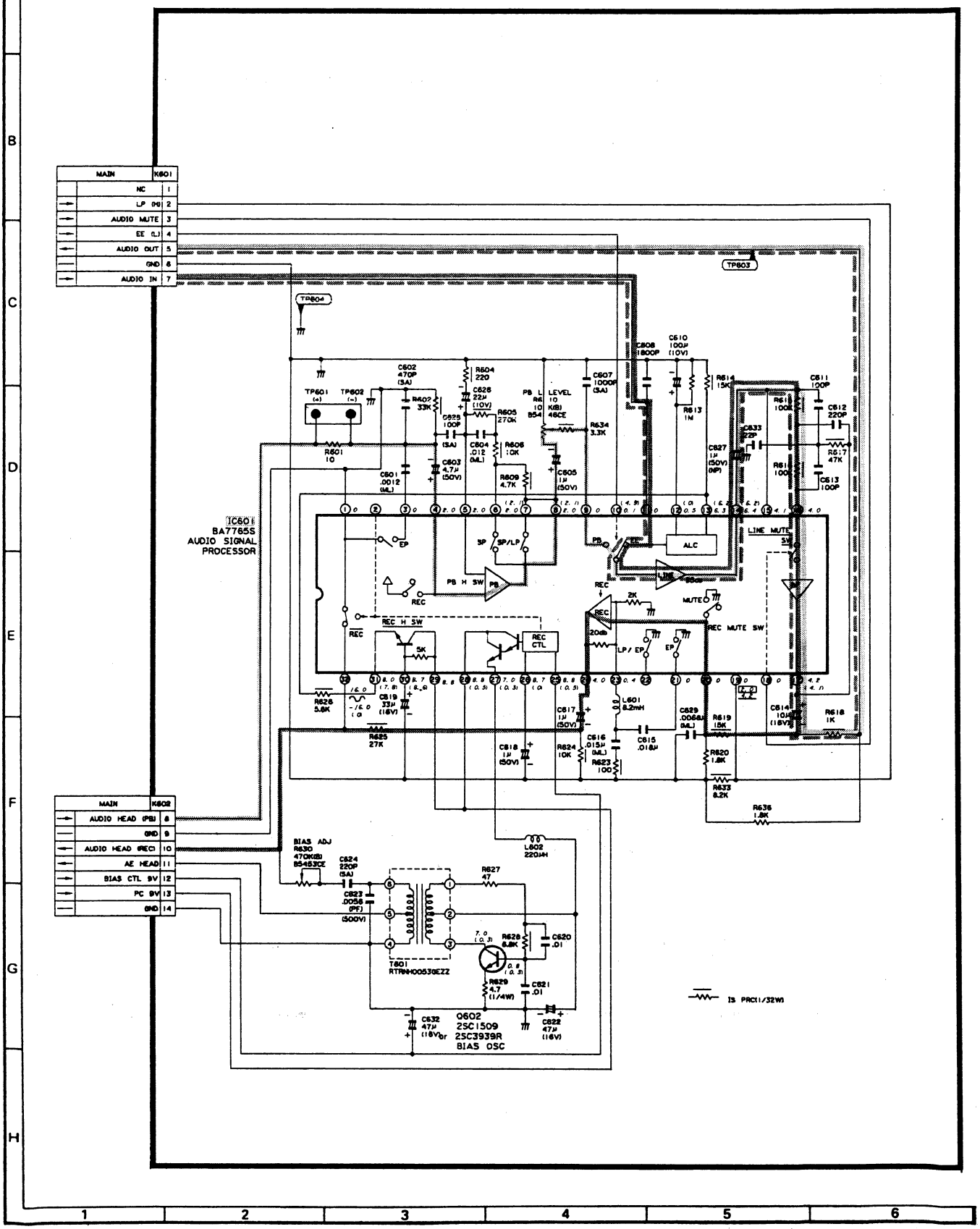


AUDIO CIRCUIT

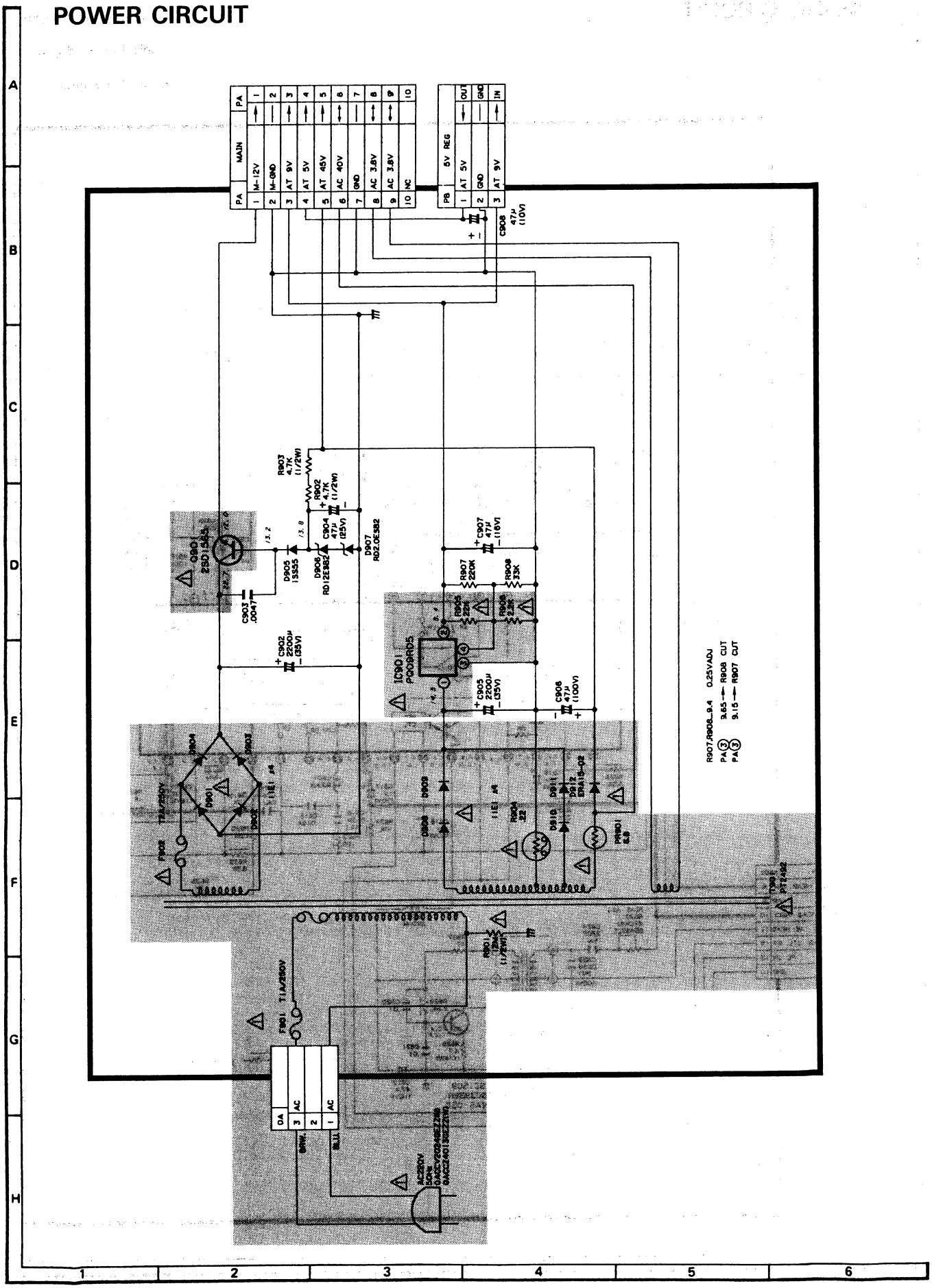
Audio Playback Signal

Audio Record Signal

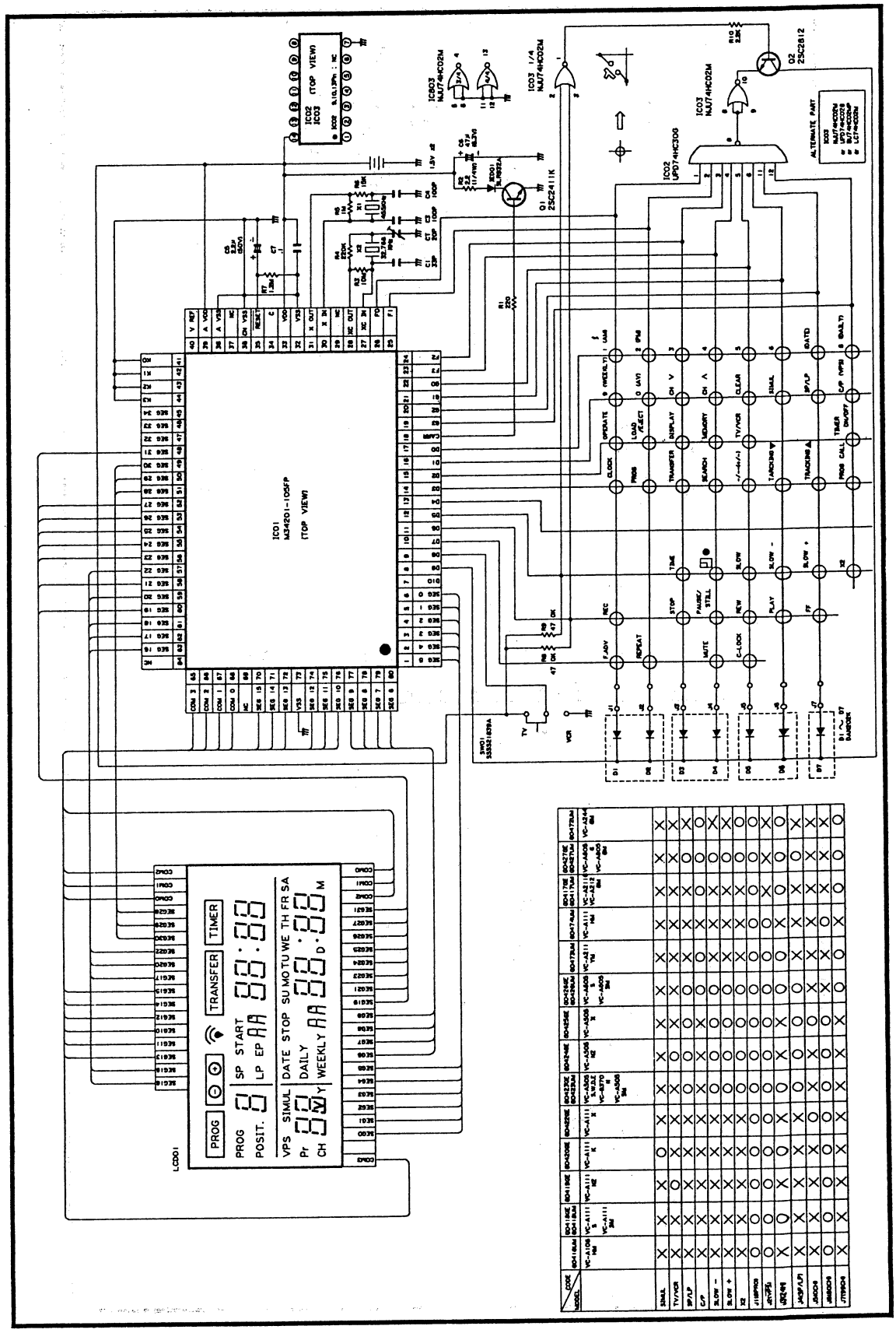
Audio E-E Signal



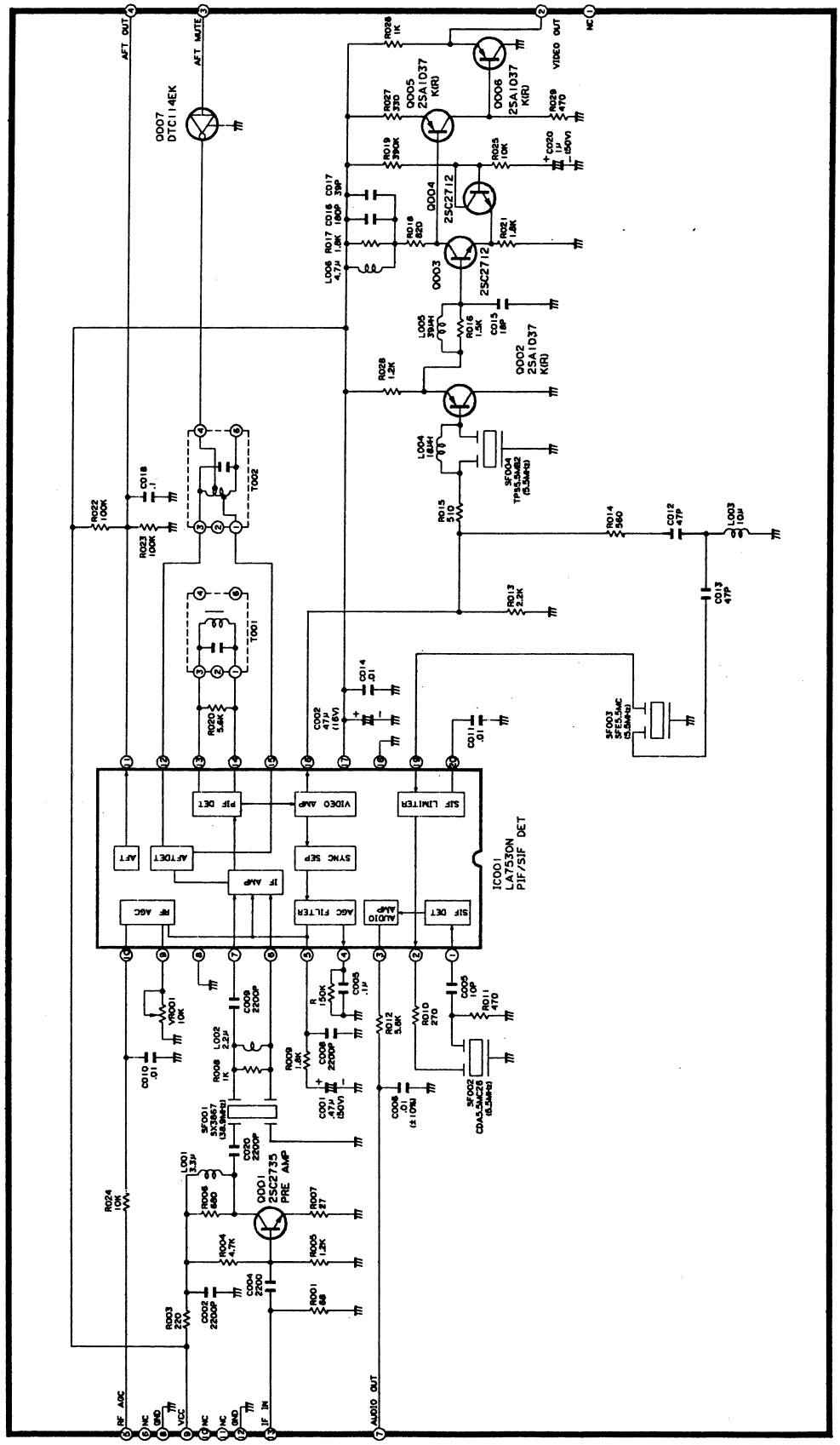
POWER CIRCUIT



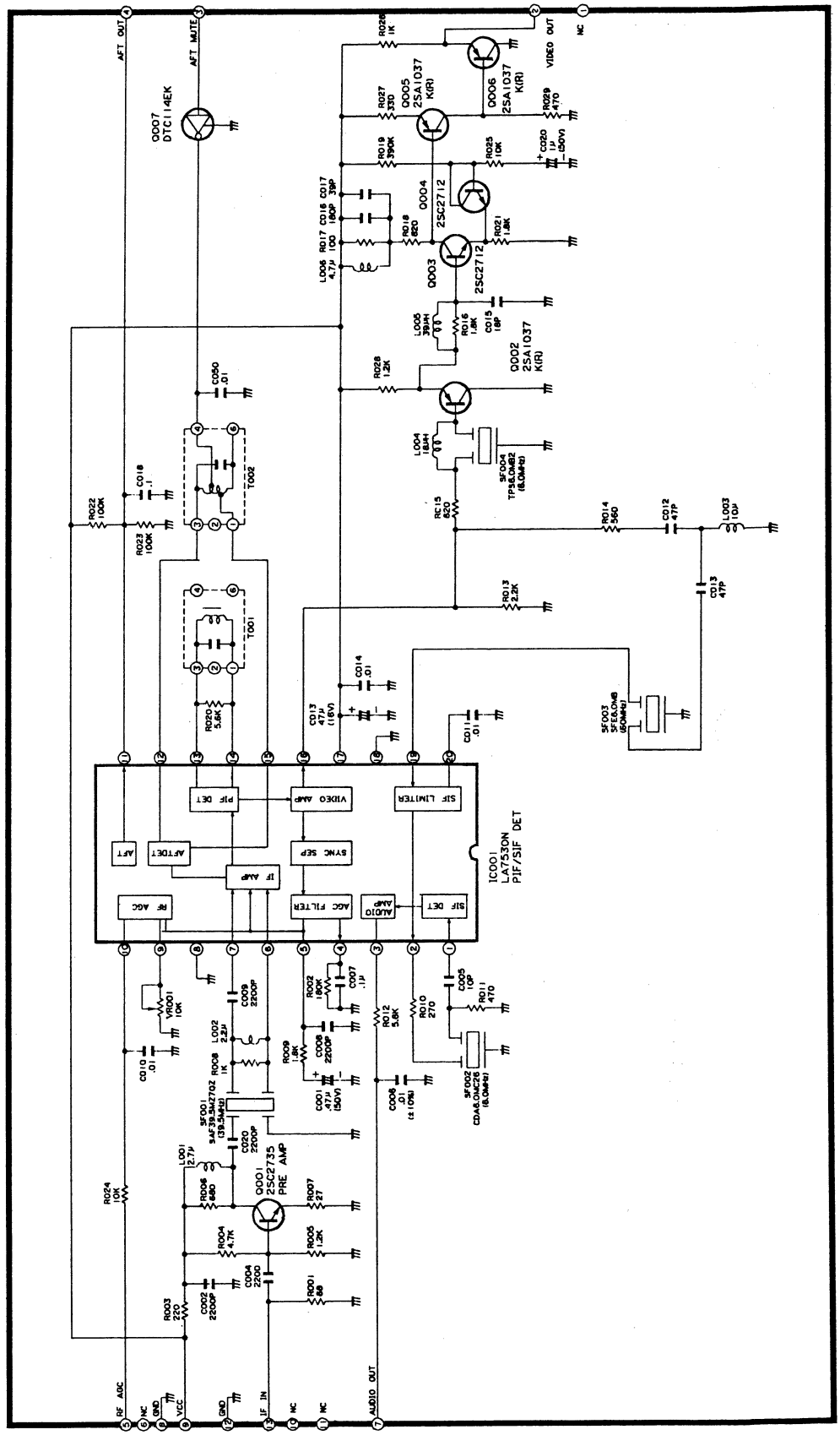
INFRARED REMOTE CONTROL CIRCUIT

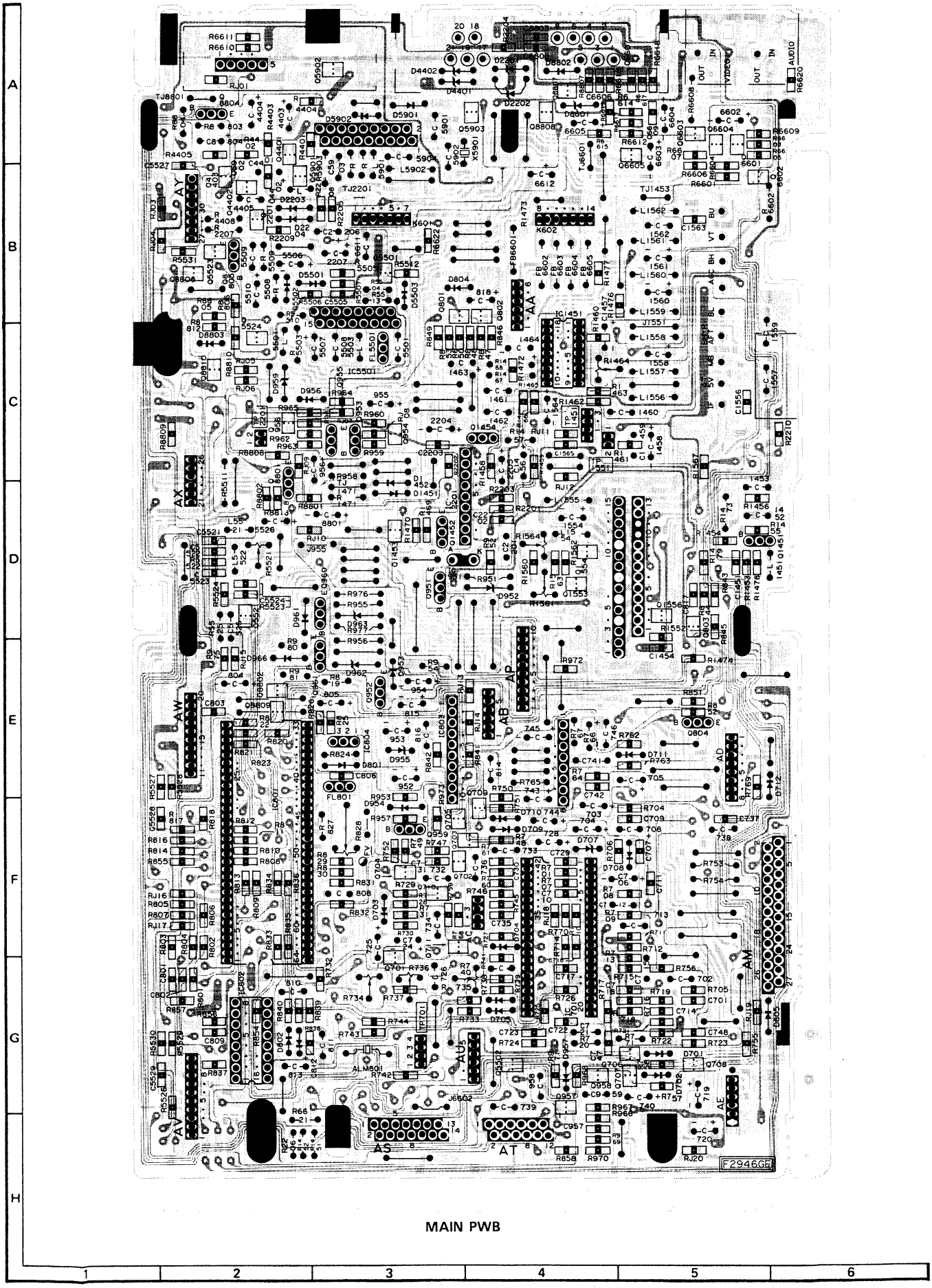


IF PACK CIRCUIT (VC-B370N)

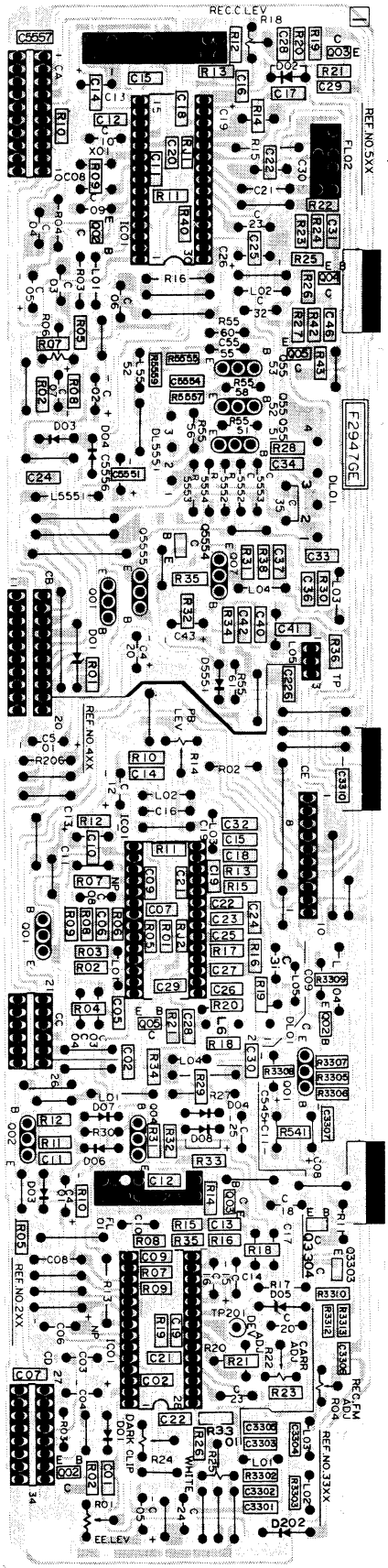


IF PACK CIRCUIT (VC-A505W)

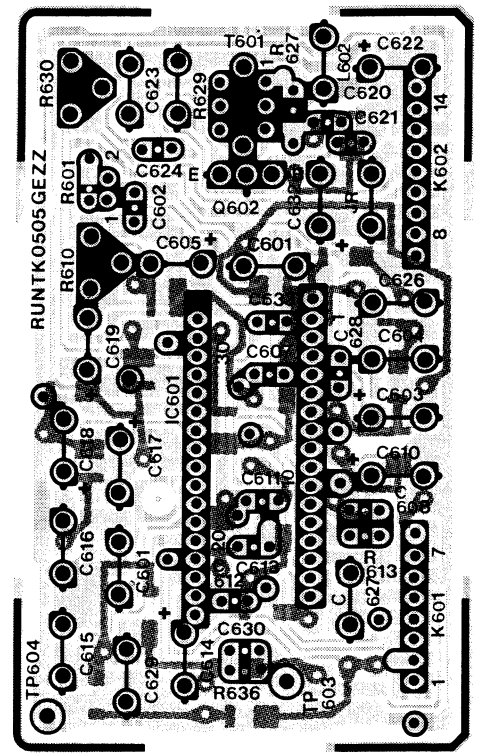




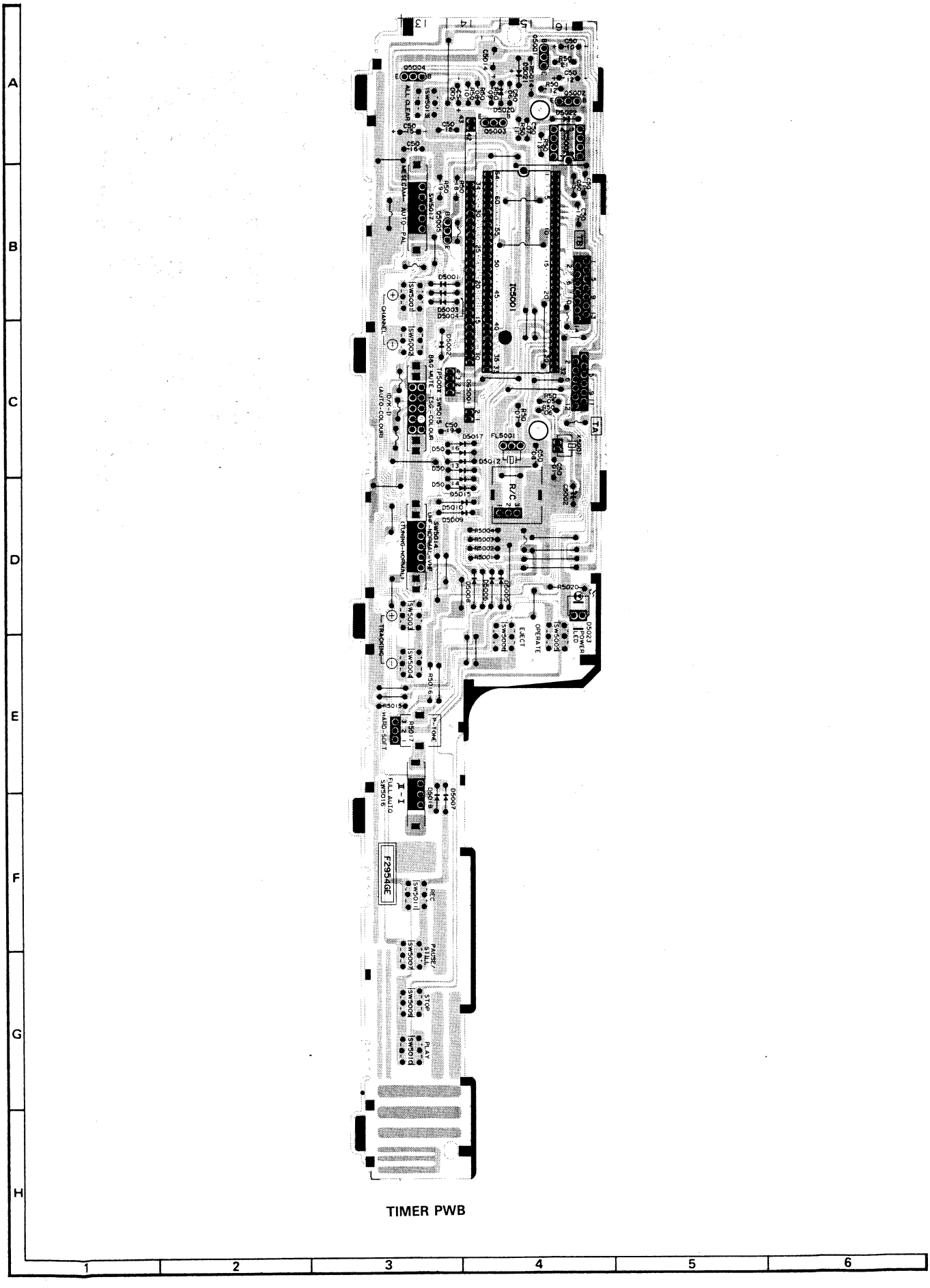
MAIN PWB



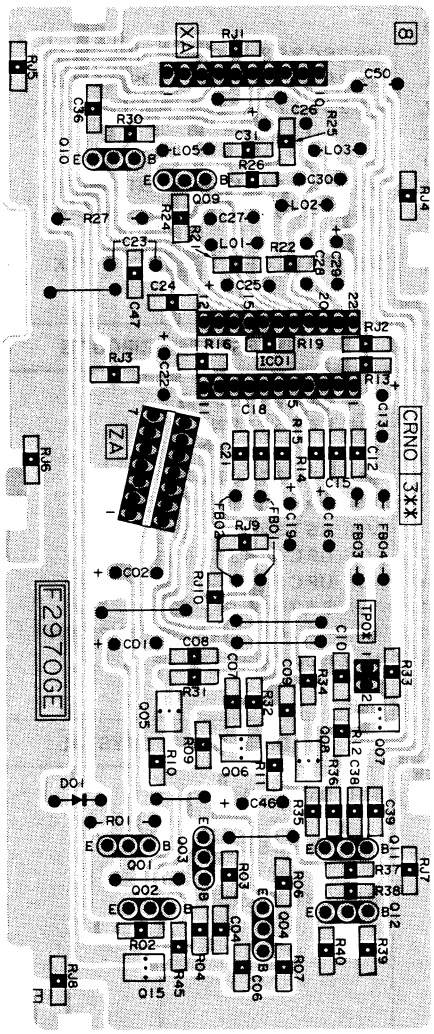
Y/C PWB



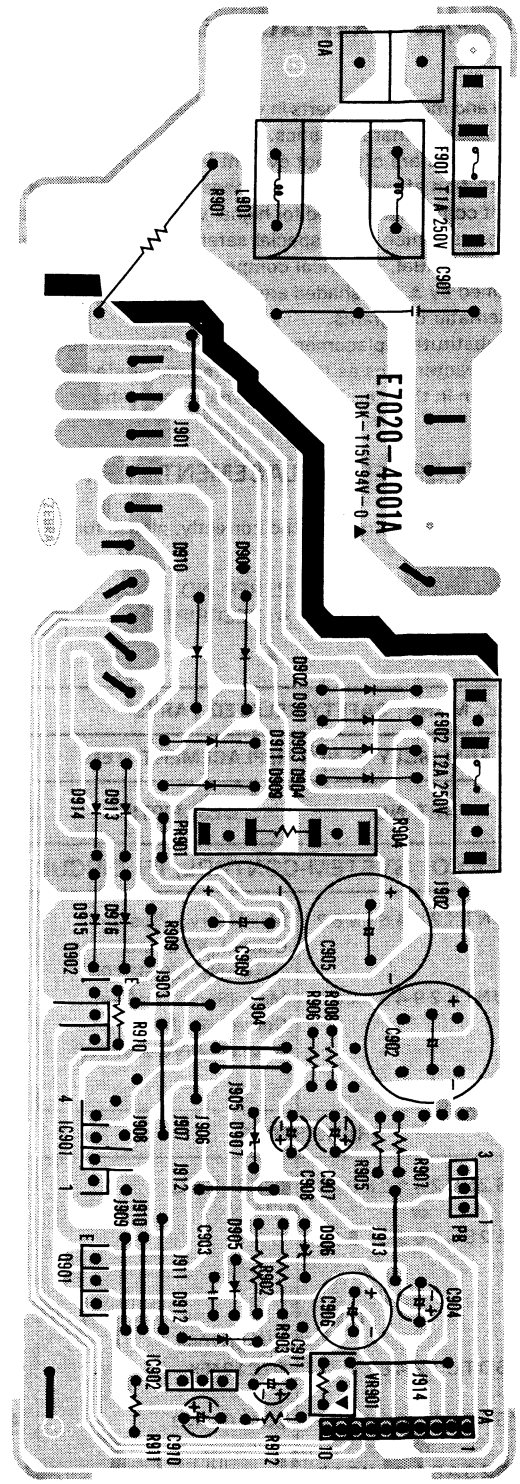
AUDIO PWB


A
B
C
D
E
F
G
H
1
2
3
4
5
6
IC5001
FL5001
X5001
R/C 2
POWER
OPERATE
EJECT
CHANNEL
TRACKING
AUTO-PAL
AUTO-COLOUR
TUNING-NORMAL
HARD-SOFT
P-TONE
FULL AUTO
ALL CLEAR
PAUSE/STILL
STOP
PLAY
REC
F2954GE

TIMER PWB



HEAD AMP PWB



POWER PWB

REPLACEMENT PARTS LIST

PARTS REPLACEMENT

Many electrical and mechanical parts in video cassette recorder have special safety-related characteristics.
These characteristics are often not evident from visual inspection nor can be protection afforded by them necessarily obtained by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have special safety characteristics are identified in this manual, electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE

⚠ MARK: SAFETY RELATED PARTS

PWB ASSEMBLY IS NOT REPLACEMENT ITEM

REF. NO.	PART NO.	DESCRIPTION	CODE
MAIN (SERVO, SYSTEM-CONTROL, IF) CIRCUIT			
	DUNTK2946TM82	Main (Servo, System-Control, IF) Board Assembly (VC-B370N)	—
	DUNTK2946TM81	Main (Servo, System-Control, IF) Board Assembly (VC-A505W)	—
TRANSISTORS			
Q702, 703,	VS2SC2412KQ-1	2SC2412KQ	AA
	or		
801, 802, 803, 957, 5501	VS2SC1623L51E	(VC-B370N)	AB
Q704, 706	VSDTC124EK/-1	DTC124EK	AB
Q705, 708,	VS2SA1037KQ-1	2SA1037KQ	AA
	or		
709, 4401, 5901, 8809	VS2SA812-M51E		AC
Q707	VSDTA124EK/-1	DTA124EK	AB
Q710, 711	VSDTC114EK/-1	DTC114EK	AB
Q804	VS2SC2001LK-1	2SC2001LK	AA
Q951	VS2SA988///1E	2SA988	AB
Q952	VS2SA1013//1E	2SA1013	AD
Q953, 955	VS2SB1117KU1E	2SB1117KU	AE
Q954, 956, 2201, 5902, 5903, 6601, 6606, 8806, 8810	VSDTC144EK/-1	DTC144EK	AB
Q1451	VS2SC383-WT-1	2SC383-WT	AE
Q1454	VS2SA933SQR1E	2SA933SQR	AB
Q6602, 6603, 6605	VS2SD1757KS-1	2SD1757KS	AC
Q6604	VSDTA144EK/-1	DTA144EK	AC
Q8801, 8805	VS2SA950-Y/1E	2SA950-Y	AD
Q8802	VSDTA114EK/-1	DTA114EK	AB
INTEGRATED CIRCUITS			
IC701	RH-iX0431GEZZ		AS
IC702	VHiBA15218N-1		AD
IC801	RH-iX0449GEZZ		AV
IC802	RH-iX0371GEZZ		AL
IC803	VHiBA6209//1E		AG
IC804	VHiPST529H2-1		AD
IC951	VHiUPC574JT-1		AC
IC1451	VHiUPC1484CA1		AM
IC2201	VHiBA7021//-1		AE
IC5501	VHiBA7007//-1	(VC-B370N)	AM
IC5901	VHiBU2762L/-1		AN
DIODES AND CRYSTAL			
D701, 702,	RH-DX0048GEZZ		AA
	or		
704, 705,	RH-DX0053GEZZ		AA
	or		
706, 708	RH-DX0142CEZZ		AA
712, 801, 802, 803, 804, 956, 957,			
5501,		(VC-B370N)	
5502,		(VC-B370N)	
5503,		(VC-B370N)	
5901, 5902, 6602, 8803			
D707	RH-EX0343GEZZ	HZS2C3	AB
D805, 954	RH-DX0052GEZZ		AB
D952	RH-EX0141GEZZ	HZS6.2EB3	AB
D953	RH-EX0152GEZZ	HZS9.1EB2	AA
D955	RH-EX0198GEZZ	HZS33EB3	AB

REF. NO.	PART NO.	DESCRIPTION	CODE
D959	RH-EX0010GEZZ	RD5.6EB2	AB
D2201, 2202, 4401, 4402	RH-EX0168GEZZ	HZS15EB2	AA
D6601	VHD1S2835//1E		AC
X5901	RCRSB0086GEZZ	Crystal	AG
CONTROLS			
R734,	RVR-M4343GEZZ	100k(B) LP Slow/Still Tracking Adj.	AB
736,		100k(B) SP Slow/Still Tracking Adj.	
740		100k(B) Playback Phase Generator MM Adj.	
R828	RVR-B4336GEZZ	100k(B) False Vertical Sync. Adj.	AD
R1464	RVR-M4306GEZZ	4.7k(B) Osc. Adj.	AC
COILS AND FILTER			
L1451	VP-XF120K0000	12μH	AB
L1560, 5902	VP-DF100K0000	10μH (VC-B370N)	AB
L4401, 5501	VP-MK221K0000	220μH (VC-B370N)	AB
L5503	RCiLP0078GEZZ	15mH	AD
FL801	RFiLA0030CEZZ	Filter	AD
FL5501	RFiLC0029TAZZ	Filter (VC-B370N)	AD
CAPACITORS			
C702, 712, 814, 2201	VCE9EA1HW105M	1μF, 50V, 20%, Electrolytic (N.P.)	AC
C715	VCE9EA1HW225M	2.2μF, 50V, 20%, Electrolytic (N.P.)	AB
C719, 728	VCEAGA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
C732, 738	RC-KZ0011GEZZ	0.1μF, Ceramic	AA
C733	VCE9EA1CW106M	10μF, 16V, 20%, Electrolytic (N.P.)	AC
C736	VCE9EA1HW475M	4.7μF, 50V, 20%, Electrolytic (N.P.)	AD
C743	RC-EZ0123GEZZ	47μF, 10V, Electrolytic	AB
C808	RC-QZA682TAYJ	0.0068μF, Mylar	AB
C1564	VCEAGA1CW337M	330μF, 16V, 20%, Electrolytic	AC
C4401	VCEAEA1CW107M	100μF, 16V, 20%, Electrolytic	AC
C4403	VCEADA0JW477M	470μF, 6.3V, 20%, Electrolytic	AB
C5508	RC-QZA273TAYJ	0.027μF, Mylar (VC-B370N)	AB
C5526	VCEAEA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
C8801	VCEAGA1AW227M	220μF, 10V, 20%, Electrolytic	AB

REF. NO.	PART NO.	DESCRIPTION	CODE
MISCELLANEOUS			
	RUNTK0505GEZZ	Audio Unit	AW
	RiFU-0514GEZZ	IF Pack (VC-B370N)	AY
	RiFU-0516GEZZ	IF Pack (VC-A505W)	AY
	VTUōF4EC-721/	Tuner (VC-B370N)	BB
	VTUōF4EK-721/	Tuner (VC-A505W)	AY
	RCNVR0018GEZZ	RF Converter (VC-B370N)	BB
	RCNVR0013GEZZ	RF Converter (VC-A505W)	BA
ALM801	RALMB0010GEZZ	Alarm	AD
	QPLGN0228TAZZ	Plug, 2 pin (TP2201)	AB
	QPLGN0328TAZZ	Plug, 3 pin (TP1451,AC)	AD
	QPLGN0428TAZZ	Plug, 4 pin (TP701–704)	AB
	QPLGN0528TAZZ	Plug, 5 pin (AB, *)	AB
	QPLGN0679GEZZ	Plug, 6 pin (AX)	AB
	QPLGN0879GEZZ	Plug, 8 pin (AY)	AB
	QPLGN1079GEZZ	Plug, 10 pin (AW, AV)	AB
	QSōCN1094GEZZ	Socket, 10 pin (AT) (VC-B370N)	AC
	QSōCN1022REZZ	Socket, 10 pin (AP)	AC
	QSōCN1294GEZZ	Socket, 12 pin (AS) (AT: VC-A505W)	AC
	QSōCN2794GEZZ	Socket, 27 pin (AM)	AD
	QJAKE0134GEZZ	Jack, Audio In/Out/ Video In/Out	AC
Y/C CIRCUIT			
	DUNTK2947TM51	Y/C Board Assembly	—
TRANSISTORS			
Q201, 202, 204, 205, 401, 5554, 5555	VSDTC144EK/-1	DTC144EK	AB
Q202	VSDTC144ES/-1	DTC144ES	AB
Q203	VS2SA1037KQ-1	2SA1037KQ	AA
Q501	VS2SC2001LK-1	2SC2001LK	AA
Q502, 503, 504, 505, 3302	VS2SC2412KQ-1	2SC2412KQ	AA
Q507, 5553	VS2SA933SQR1E	2SA933SQR	AB
Q3301, 5551, 5552	VS2C1740SQR1E	2C1740SQR	AC
INTEGRATED CIRCUITS			
IC201	VHiAN3215NK-1		AP
IC401	VHiAN3320K/-1		AQ
IC501	VHiTA8644N/-1		AP

REF. NO.	PART NO.	DESCRIPTION	CODE
DIODES AND CRYSTAL			
D201, 202, 203, 206, 207, 208, 502, 503, 504, 5551	RH-DX0048GEZZ or RH-DX0053GEZZ	1N4531	AA AA
D205	RH-EX0049GEZZ	MTZ5.1A	AB
D501	RH-EX0374GEZZ	HZS6A3/TA	AA
X501	RCRSB0002CEZZ	Crystal	AM
CONTROLS			
R201, 224, 225, 414	RVR-M4419GEZZ	47k(B) EE Level Adj. 47k(B) Dark Clip Adj. 47k(B) White Clip Adj. 47k(B) Playback Level Adj.	AB
R220	RVR-M4415GEZZ	10k(B) Deviation Adj.	AB
R222	RVR-M4417GEZZ	10k(B) FM Carrier Adj.	AB
R506	RVR-M4380GEZZ	100k(B) APC	AC
R518	RVR-M4432GEZZ	2.2k(B) Record Chroma Level Adj.	AB
R3304	RVR-M4430GEZZ	1k(B) Record FM Level Adj.	AB
COILS AND FILTERS			
L201, 3304, 5551	VP-DF221K0000	220μH	AB
L401, 404, 3302	VP-XF680K0000	68μH	AB
L402	VP-XF121K0000	120μH	AB
L403	VP-XF101K0000	100μH	AB
L405, 406	VP-XF150K0000	15μH	AB
L501	VP-XF180K0000	18μH	AB
L502	VP-XF390K0000	39μH	AB
L503, 504	VP-XF221K0000	220μH	AB
L505	VP-MK561K0000	560μH	AB
L3301, 3303	VP-XF151K0000	150μH	AB
L5552	VP-XF120K0000	12μH	AB
DL401	RCiLZ0286GEZZ	Delay Line	AQ
DL501	RCiLZ0191GEZZ	Delay Line	AM
DL5551	RCiLZ0183GEZZ	Delay Line	AK
FL201	RMPTD0254GEZZ	Filter	AG
FL501	RMPTD0239GEZZ	Filter	AG
FL502	RMPTD0256GEZZ	Filter	AF
CAPACITORS			
C203	VCE9EA1HW335M	3.3μF, 50V, 20% Electrolytic (N.P.)	AB
C225	VCEAGA1AW227M	220μF, 10V, 20% Electrolytic	AB
C408	VCE9EA1HW105M	1μF, 50V, 20%, Electrolytic (N.P.)	AC
C420	VCEAGA0JW108M	1000μF, 6.3V, 20% Electrolytic	AC
C504	RC-QZA392TAYJ	3900pF, Mylar	AB
C506	RC-QZA222TAYJ	2200pF, Mylar	AB
C508	RC-KZ0011GEZZ	0.1μF, Ceramic	AA
MISCELLANEOUS			
	QPLGN0329TAZZ	Plug, 3 pin (CF)	AB
	QPLGN1078GEZZ	Plug, 10 pin (CE)	AC
	QSõCN0679GEZZ	Socket, 6 pin (CC)	AC
	QSõCN0879GEZZ	Socket, 8 pin (CD)	AC
	QSõCN1079GEZZ	Socket, 10 pin (CA, CB)	AC
TIMER CIRCUIT			
	DUNTK2954HE61	Timer Board Assembly (VC-B370N)	—
	DUNTK2954HE60	Timer Board Assembly (VC-A505W)	—
TRANSISTORS			
Q5001, 5004	VS2SA1561Q/1E	2SA1561	AC
Q5002	VSDTC124ELT-1	DTC124ELT	AA
Q5003	VSDTC144ELT-1	DTC144ELT	AB
INTEGRATED CIRCUITS			
IC5001	RH-iX0455GEZZ		AX
IC5002	VHiMSM16905-1		AL
DIODES AND CRYSTAL			
D5001 | 5004, 5005, 5006, 5007, 5009, 5010, 5017, 5019 | 5021	RH-DX0048GEZZ or RH-DX0053GEZZ	(VC-B370N) (VC-B370N)	AA AA
D5023	RH-PX0139GEZZ	LED	AB
X5001	RCRSB0059GEZZ	Crystal	AD
CONTROL			
R5017	RVR-B4293GEZZ	20k(B) Picture Tone Adj.	AC

REF. NO.	PART NO.	DESCRIPTION	CODE
TRIMMER			
C5002	RTō-H1005AEZZ	Trimmer	AC
CAPACITOR			
C5014	RC-EZ0127GEZZ	0.018μF, Electrolytic	AF
FILTER			
FL5001	RFiLC0090GEZZ		AD
MISCELLANEOUS			
DG5001	VVK12BT22GK-1	Fluorescent Display Tube	AX
	RRMCU0037GEZZ	Remote Control Receiver	AL
	QPLGN0428TAZZ	Plug, 4 pin (TP1501—1504)	AB
	QSōCN1095GEZZ	Socket, 10 pin (TA) (VC-B370N)	AC
	QSōCN1295GEZZ	Socket, 12 pin (TB) (TB: VC-A505W)	AC
SW5001,	QSW-K0052GEZZ	Switch, Channel-Up	AB
5002,		Switch, Channel-Down	
5003,		Switch, Tracking (+)	
5004,		Switch, Tracking (−)	
5005,		Switch, Power	
5006,		Switch, Eject	
5007,		Switch, Pause	
5009,		Switch, Stop	
5010,		Switch, Playback	
5011,		Switch, Record	
5013		Switch, ACL	
SW5014	QSW-S0194GEZZ	Switch, VHF/UHF (VC-B370N)	AC
SW5014,	QSW-S0193GEZZ	Switch, VHF/UHF (VC-A505W)	AC
5016		Switch, Full Auto (VC-A505W)	
SW5015	QSW-S0104GEZZ	Switch, Mute On/Off (VC-A505W)	AD
SW5015,	QSW-S0193GEZZ	Switch, Mute On/Off (VC-B370N)	AC
5016		Switch, Full Auto (VC-B370N)	
HEAD AMP CIRCUIT			
	DUNTK2970TM50	Head Amp Board Assembly	—
TRANSISTORS			
Q301, 302	VS2SD655-DE1E	2SD655 (D.E)	AC
Q303, 304	VS2SA933SQR1E	2SA933	AB
Q305, 306, 307, 308	VS2SC2412KQ-1	2SC2412	AA
Q309	VS2SC1923-ō1E	2SC1923 (ō)	AD
Q310	VS2C1740SQR1E	2C1740SQR	AC
Q311	VS2SA1015Y/1E	2SA1015(Y)	AC
Q312	VS2SC1815YW-1	2SC1815(Y)	AC
Q315	VSDTC144EK/-1	DTC144EK	AB
INTEGRATED CIRCUIT			
IC301	VHiAN3311K/-1		AS
DIODE			
D301	RH-DX0048GEZZ		AA
	or		
	RH-DX0053GEZZ		AA
COILS			
L301	VP-XF270K0000	27μH	AB
L302	VP-XF330J0000	33μH	AB
L303	VP-XF180K0000	18μH	AB
L305	VP-XF151K0000	150μH	AB
MISCELLANEOUS			
	QPLGN0229TAZZ	Plug, 2 pin (TP31, 32)	AB
	QPLGN1080GEZZ	Plug, 10 pin (XA)	AC
	QSōCN0732REZZ	Socket, 7 pin (ZA)	AC
FB301, 302, 303, 304	RBLN-0013GEZZ	Ferrite Bead	AB
AUDIO CIRCUIT			
	RUNTK0505GEZZ	Audio Board Assembly	—
TRANSISTOR			
Q602	VS2SC3939R1-1	2SC3939R	AD
	or		
	VS2SD1812Q1-1	2SD1812Q	AC
INTEGRATED CIRCUIT			
IC601	VHiBA7765SX-1	BA7765S	AL
	or		
	VHiBA7765AS/ /	BA7765AS	AM
CONTROLS			
R610	RVR-B5446CEZZ	10k(B) Playback Level Adj.	AB
R630	RVR-B5453CEZZ	470k(B) Bias Adj.	AB

REF. NO.	PART NO.	DESCRIPTION	CODE
COILS AND TRANSFORMER			
L601	VP-YF822J0000	8.2mH	AC
	or		
	VP-ZF822J0000	8.2mH	AC
L602	VP-ZK221K0000	220μH	AB
T601	RTRNH0053GEZZ		AE
CAPACITORS			
C610	VCEAAA1AW107M	100μF, 10V, 20%, Electrolytic	AB
C623	VCQPSA2AA562J	.0056μF, 100V, Polypro Film	AC
C627	VCE9EA1HW105M	1μF, 50V, 20%, Electrolytic (N.P.)	AB
MISCELLANEOUS			
	QPLGN0229TAZZ	Plug, 2 pin (TP601, 602)	AB
	QPLGZ0725GEZZ	Plug, 7 pin (K601, 602)	AC
POWER CIRCUIT			
	RDENT0317GEZZ	Power Board Assembly	–
TRANSISTOR			
⚠Q901	95KUAD0088AZ	2SD1565	AF
INTEGRATED CIRCUIT			
⚠IC901	95KUCB0029AZ	PQ09R05	AK
DIODES			
⚠D901, ⚠902, ⚠903, ⚠904, ⚠908, ⚠909, ⚠910, ⚠911	95KUBC0112AZ	11E1	AB
D905	95KUBA0005AZ	1SS55	AB
D906	95KUBD0439CZ	RD12ESB2	AB
D907	95KUBD0455CZ	RD2.0ESB2	AB
⚠D912	95KUBC0125BZ	ERA15-02	AB
CAPACITORS			
C902, 905	95KUGZ0655ZZ	2200 μF, 35V, Electrolytic	AG
C906	95KUGAJ470BU	47μF, 100V, Electrolytic	AD

REF. NO.	PART NO.	DESCRIPTION	CODE
RESISTORS			
⚠R901	95KUEZ0085ZZ	12M ohm, 1/2W, Solid	AE
⚠R904	95KUEBBR22AG	.22 ohm, Fusible Resistor	AC
⚠R905	95KUES2202AA	22k ohm, 1/4W, Carbon	AA
⚠R906	95KUES2201AA	2.2k ohm, 1/4W, Carbon	AA
⚠PR901	95KUEZ0389ZZ	6.8 ohm, Thermistor	AE
TRANSFORMER			
⚠T901	95K116035001	Power Transformer (PT2492)	BE
MISCELLANEOUS			
⚠	QACCV2024GEZZ	AC Cord, AC220V/50Hz (VC-B370N)	AM
⚠	QACCZ4013GEZZ	AC Cord, AC220V/50Hz (VC-A505W)	AQ
⚠F901	95KPJC0472ZZ	Fuse, T1A, 250V	AD
⚠F902	95KPJC0473ZZ	Fuse, T2A, 250V	AD
	95KPKZ0194ZZ	Plug, 3 pin (OA)	AC
	95KEFB0005ZZ	Plug, 9 pin (PA)	AF
	95KECG7295ZZ	Plug, 3 pin (PB)	AF
INFRARED REMOTE CONTROL CIRCUIT			
	RRMCG0423GESA	Infrared Remote Control Unit	BD
TRANSITOR			
Q1	92P3TSN0005T	2SC2411K	AD
Q2	92P3TSN0022T	2SC2812	AC
INTEGRATED CIRCUIT			
IC01	92P3SQ00109	M34201M4-105FP	AZ
IC02	92P3SC00191	UPD74HC30G	AM
IC03	92P3SC00192	LC74HC02M	AG
	or		
	92P3SC00188	BU74HC02MF	AG
	or		
	92P3SC00189	NJU74HC02	AH
	or		
	92P3SC00190	UPD74HC02G	AG
DIODE AND CRYSTAL			
D1 | D6	92P3TSD0007T	DTN202K	AC
X1	92P3EF00021	Crystal, 455kHz	AE
X2	92P3EQ00003	Crystal, 32.768kHz	AM
MISCELLANEOUS			
	92P3ELFA048	LCD	AX

REF. NO.	PART NO.	DESCRIPTION	CODE
	92P3ETFA9701	Battery Terminal (A)	AC
	92P3ETFA9801	Battery Terminal (B)	AB
	92P3ETFA9601	Battery Terminal (C)	AB
	92P3ECFA0011	Connector	AF
SW01	92PSSSS21389A	Switch, TV/VCR	AE
	CABINET PARTS		
	92PFA11D6803	Upper Cabinet	AM
	92PFA11E1701	Bottom Cabinet	AK
	92PFA11D2101	Battery Cover	AD
	92P2A391060	Screw	AA
	92P2A502100	Screw	AA
	92PFA23A5001	Spacer	AD
	92PFA42B0205	Rubber Key A	AH
	92PFA42B2405	Rubber Key B	AT
	92PFA58A6601	Infrared Cover	AE
	92PFA61A8806	Knob	AD
	92PFA62A9709	Indication Plate	AG
	92PFA62B1723	Indication Plate	AN
	THE OTHER PARTS		
	QCNW-2702GEZZ	Connecting Cord	AK
	TINS-1243GEZZ	Operation Manual	AK
	MECHANISM CHASSIS PARTS		
1	PGIDS0023GEFW	Retaining Guide	AE
2	MSPRC0142GEFJ	Retaining Guide Spring	AA
3	MLEVC0022GEZZ	Half-Loading Lever	AF
4	MSPRT0270GEFJ	Half-Loading Lever Spring	AA
5	MLEVF0284GEFW	Half-Loading Drive Lever	AC
6	MSPRT0269GEFJ	Half-Loading Reciprocating Spring	AA
7	MLEVF0283GEZZ	Half-Loading Reciprocating Lever	AB
8	MSPRC0144GEFJ	Azimuth Spring	AA
9	RHEDU0070GEZZ	Audio/Control Head Ass'y	AS
10	PCAPS1015GEZZ	Retaining Guide Cap	AA
11	QPWBF2888GEZZ	Audio/Control Head PWB	AB
12	MLEVF0292GEZZ	Audio/Control Head Arm	AD
13	MSPRD0087GEFJ	Audio/Control Head Arm Spring	AA
14	LHLDZ1606GEZZ	Loading Block Holder Ass'y	AC
15	QPRBF2886GEZZ	Loading Block PWB	AD
16	RMOTM1049GEZZ	Loading Motor	AM
17	QPLGN0529TAZZ	Plug, 5 Pin (MG)	AB
18	QSW-R0023GEZZ	Cam Switch	AF
19	NGERW1032GEZZ	Worm Wheel	AC
20	NPLYV0133GEZZ	Loading Motor Pulley	AC
21	NBLTK0058GE00	Loading Belt	AA
22	NGERW1031GEZZ	Worm Ass'y	AC
23	NSFTG0045GEFJ	Worm Shaft	AB
24	NGERH1118GEZZ	Master Cam	AC
25	MLEVF0281GEZZ	Pinch Roller Lever Ass'y	AN
26	MLEVF0290GEZZ	Relay Shifter Lever	AE
27	MLEVC0023GEZZ	Reverse Guide	AG
28	MSPRD0086GEFJ	Reverse Guide Spring	AA

REF. NO.	PART NO.	DESCRIPTION	CODE
29	RMOTN2019GEZZ	Capstan D.D. Motor	AZ
30	MLEVP0136GEZZ	Slow Brake Lever	AA
31	MSPRT0276GEFJ	Slow Brake Spring	AA
32	MSPRC0151GEFJ	Reverse Guide Spring	AA
33	MLEVF0289GEZZ	Relay Gear Drive Lever	AE
34	MSLIF0043GEZZ	Brake Shifter	AK
35	NSFTZ0068GEFD	Brake Lock Shaft	AC
36	MSPRC0143GEFJ	Absorber Plate Spring	AB
37	MSPRT0274GEFJ	Video Search Spring	AB
38	MLEVP0130GEZZ	Video Search Brake Lever	AD
39	MLEVP0131GEZZ	Video Search Reciprocating Lever	AC
40	RPLU-0083GEZZ	Brake Solenoid Ass'y	AF
41	NDAIV1046GEZZ	Take-up Reel Disk Ass'y	AG
42	NGERH1122GEZZ	Idler Gear Ass'y	AN
43	NPLYV0134GEZZ	Reel Pulley	AC
44	MSPRD0085GEFJ	Shifter Spring	AB
45	PCOVP1018GEZZ	Shifter Spring Cover	AC
46	LHLDP1092GEZZ	Cassette LED Holder	AE
47	RH-PX0169GEZZ	Cassette LED	AD
48	QPWBF2977GEZZ	Reel Sensor PWB	AK
49	RH-PX0171GEZZ	Reel Sensor	AE
50	LCHSS0016GEZZ	Reel Block Chassis	AL
51	MLEVP0134GEZZ	Tension Adjusting Lever	AC
52	MLEVP0133GEZZ	Tension Release Lever	AC
53	MLEVP0132GEZZ	Back Tension Lever	AC
54	MSPRT0273GEFJ	Spring, Fast Forward	AB
55	NDAIV1047GEZZ	Supply Reel Disk Ass'y	AH
56	MSPRT0272GEFJ	Main Brake Spring	AC
57	MLEVP0135GEZZ	Intermediate Lever	AC
58	MLEVP0129GEZZ	Main Take-up Brake Lever	AE
59	MLEVP0128GEZZ	Main Supply Brake Lever	AE
60	NGERH1121GEZZ	Loading Relay Gear	AA
61	MSPRT0271GEFJ	Loading Reciprocating Spring	AA
62	NGERH1120GEZZ	Take-up Loading Gear	AA
63	MLEVF0286GEZZ	Take-up Loading Arm Ass'y	AC
64	NGERH1119GEZZ	Supply Loading Gear	AA
65	MLEVF0285GEZZ	Supply Loading Arm Ass'y	AC
66	LCHSM0091GEZZ	Main Chassis Ass'y	AR
67	LBNDK1002GEZZ	Tension Band Ass'y	AD
68	LHLDZ1607GEZZ	Tension Spring Hook Plate	AA
69	MSPRT0275GEFJ	Tension Spring	AA
70	MLEVF0291GEZZ	Tension Arm Ass'y	AF
72	MSLIF0042GEFW	Take-up Pole Base Slider	AB
73	LPOLM0033GEZZ	Take-up Pole Base Ass'y	AG
74	NROLP0062GEZZ	Guide Roller Ass'y	AE
75	MSLIF0041GEFW	Supply Pole Base Slider	AB
76	LPOLM0032GEZZ	Supply Pole Base Ass'y	AG
77	PGIDM0066GEZZ	Take-up Loading Rail	AB
78	PGIDM0067GEZZ	Supply Loading Rail	AB
79	NSFTL0563GEFW	Supply Impedance Roller Innor	AC
80	PGIDH0031GEFW	Supply Impedance Roller Flange	AA
81	NROLP0056GEZZ	Supply Impedance Roller	AD
82	RHEDT0026GEZZ	Full Erase Head Ass'y	AK
83	QPWBF2936GEZZ	Full Erase Head PWB	AA
84	MSPRP0114GEFJ	Cassette Control Earth Spring	AA
85	NBLTK0059GE00	Reel Belt	AB
86	MLEVP0146GEZZ	Auxiliary Fast Forward Brake Lever	AE
87	MSPRT0282GEFJ	Auxiliary Fast-Forward Brake Spring	AB
89	DDRMU0004HE17	Upper Drum Ass'y (VC-B37ON)	BQ

REF. NO.	PART NO.	DESCRIPTION	CODE
89	DDRMU0004HE20	Upper Drum Ass'y (VC-A505W)	BN
90	PGi DC0039GEFW	Drum Base	AL
91	DDRML0012HE00	Lower Drum Ass'y (VC-B370N)	BE
91	DDRML0012HE02	Lower Drum Ass'y (VC-A505W)	BG
92	QBRSK0021GEZZ	Earth Brush Ass'y	AC
93	RMōTP1096GEZZ	Drum D.D. Motor Ass'y	AW
94	LANGT9105GEFW	Heater Angle	AC
95	VHi M5F7805L-1	3-terminal Regulator	AE
96	QCNW-4880GEZZ	Full Flat Cable (Drum D.D. Motor)	AN
97	QCNW-5313GEZZ	Full Flat Cable (Capstan D.D. Motor)	AN
98	LHLDW1109GEZZ	Full Flat Cable Holder	AB
99	RDTCH0018GEZZ	Dew Sensor	AG
100	QSōCN0534REZZ	Socket, 5 pin (MF)	AC
101	VRS-TW2ED221J	220 ohm, 1/4W, 5%, Oxide Film	AA
102	VCKYTV1HB102K	.001μF, 50V, 10%, Disc	AA
103	VRS-TV1JD473J	47k ohm, 1/16W, 5%, Oxide Film	AA
104	PCAPS8001GEZZ	Release Pin Cap	AA
105	LANGA0051GEFW	Take-Up Reel Disk Catch Holder	AB
106	PGi DH0036GEFW	Supply Impedance Roller Flange L	AA

CASSETTE HOUSING CONTROL PARTS

	CHLDX3046GE00	Cassette Housing Control Assembly (Excludes the Cassette Cover)	AY
301	HDECQ0559GESA	Cassette Cover	AG
302	PGi DM0069GE00	Down Guide	AC
303	QSW-F0034GEZZ	Cassette Erase Protection Switch	AC
304	LHLDX1008GE00	Cassette Housing Frame (Right)	AF
305	MARMP0038GE00	Cassette Cover Arm	AA
306	NGERW1036GEZZ	Phase Gear	AA
307	MSPRD0088GEFJ	Drive Gear Spring (Right)	AA
308	NGERW1034GEZZ	Drive Gear (Right)	AB
309	MSPRT0277GEFJ	Reciprocating Spring	AA
310	NGERW1033GEZZ	Worm Wheel Gear	AB
311	MLEVP0142GE00	Open Lever	AA
312	MSPRD0091GEFJ	Open Lever Spring	AA
313	MLEVP0141GEZZ	Switching Lever	AA
314	MSPRT0280GEFJ	Switching Lever Spring	AA
315	QSW-F0035GEZZ	Cassette Switch	AD
316	LANGF9355GEFW	Worm Bracket	AB
317	NBRGP0013GEZZ	Bearing	AA
318	NSFTD0016GEZZ	Worm Shaft Ass'y	AE
319	MLEVP0140GEZZ	Clutch Lock Lever	AA
320	MSPRT0279GEFJ	Clutch Loch Lever Spring	AA
321	MLEVP0139GEZZ	Clutch Release Lever	AA
322	MSPRD0092GEFJ	Clutch Release Lever Spring	AA
323	MLEVP0138GEZZ	Clutch Lever	AA
324	NPLYV0135GEZZ	Pulley	AA
325	NBLTK0060GE00	Cassette Loading Belt	AB
326	LANGF9354GEFW	Upper Plate	AD
327	LHLDX1013GE00	Slider Holder (Left)	AB
328	MSPRP0115GEFJ	Cassette Spring	AB
329	LANGF9357GEFW	Slider Lock (Left)	AA
330	MSPRT0281GEFJ	Slider Lock Spring	AA
331	MSLi F0044GEFW	Slider	AF
332	MARMP0039GEZZ	Lock Release Lever Ass'y	AA
333	QSW-F0037GEZZ	Auto Load Switch	AD
334	MLEVP0143GE00	Slider Lock Cover	AA
335	LANGF9356GEFW	Slider Lock (Right)	AA
336	LHLDX1012GE00	Slider Holder (Right)	AB
337	NGERW1035GEZZ	Drive Gear (Left)	AB
338	MSPRD0089GEFJ	Drive Gear Spring (Left)	AA
339	LHLDX1009GE00	Cassette Housing Frame (Left)	AF
340	NSFTD0015GEFD	Main Shaft	AD
341	MSPRD0090GEFJ	Cassette Cover Spring	AA
342	QPWBF3005GEZZ	Start Sensor PWB	AC
343	QPWBF2894GEZZ	End Sensor PWB	AB
344	RH-PX0053GEZZ	Phototransistor	AF
345	VS2SA937-Q/-1	Transistor	AC
346	QSōCN0595GEZZ	Socket, 5 Pin	AB
347	VRD-RA2EE153J	15k ohm, 1/4W, 5%, Carbon	AA
348	VRD-RA2EE223J	22k ohm, 1/4W, 5%, Carbon	AA
349	VRD-RA2BE332J	3.3k ohm, 1/8W, 5%, Carbon	AA
350	VRD-RA2BE472J	4.7k ohm, 1/8W, 5%, Carbon	AA
351	VRD-RA2BE103J	10k ohm, 1/8W, 5%, Carbon	AA
352	VCTYPA1EX473M	.047μF, 25V, 20%, Ceramic	AA
401	LX-WZ1020GE00	Cut Washer (4.2W-6.0-0.5)	AA
402	LX-HZ3046GEFD	Screw (B Tight BTN3P+6S)	AA

SCREWS, NUTS, WASHERS

201	LX-NZ3039GEZZ	Adjusting Nut	AA
202	XWHSD26-05060	Washer W2.6S-6-0.5	AA
203	XRESJ20-04000	E Ring-2	AA
204	LX-BZ3095GEFD	AC Head Screw	AA
205	XBPSD26P06000	Azimuth Adjusting Screw	AA
206	LX-BZ3096GEFD	Tilt Adjusting Screw	AA
207	XNFSD40-31000	Adjusting Nut (A/C Head)	AB
208	XWHJZ31-05054	Washer W3.1-5.4-0.5	AA
209	LX-WZ1041GE00	Washer W2.6-6-0.5 (LM)	AA
210	XHPSD26P06WS0	Screw C2.6P+6S	AA
211	LX-RZ3001AEZZ	E Ring-3	AA
212	XWHJZ45-02060	Washer PSW4.6-6-0.25	AA
213	LX-NZ4043GEFW	Adjusting Nut (X-Position)	AB
215	LX-WZ1003GE00	Washer CW2.7-7-0.5	AA
216	XRESJ12-03000	E Ring-1.2	AA
217	XBPSD26P03000	Screw 2.6P+3S	AA
218	LX-WZ1006GE00	Washer CW2.5-5.4-0.5	AA
219	XRESJ25-04000	E Ring-2.5	AA
220	XWHJZ25-05050	Washer W2.6-5-0.5	AA
221	XWHJZ25-01050	Washer W2.6-5-0.13	AA
222	XWHJZ25-02050	Washer W2.6-5-0.25	AA
223	LX-HZ3043GEZZ	Screw W2.6P+6S	AA
224	LX-BZ3099GEZZ	Screw WSW2P+11S	AB
225	LX-XZ3030GEFD	Screw M2x4	AC
226	XHPSD26P08WS0	Screw C2.6P+8S	AA
227	XJBSD26P08WS0	B Tight Screw C2.6P+8S	AA

REF. NO.	PART NO.	DESCRIPTION	CODE
228	XHPSD30P08WS0	Screw C3P+8S	AA
229	LX-WZ1040GE00	Washer CW2.5-6-0.5	AA
230	XJBSD20P06000	B Tight Screw 2P+6S	AA
231	LX-BZ3039GEFN	Screw W3P+9S-NI	AA
232	LX-HZ3045GEFD	Screw S3P+8S-6W	AA
233	LX-BZ3064GEFN	Screw SW3P+6S-NI	AA
234	XBPSD26P12J00	Screw SW2.6P+12S	AA
235	XBPSD30P05J00	Screw SW3P+5S	AA
236	XBPSD30P06J00	Screw S3P+6S	AA
237	XHPSD30P08000	Screw S3P+8S	AA
238	LX-RZ3001AEZZ	E-Ring (Curl)	AA
239	LX-WZ1042GE00	Washer CW2.7-7-0.5	AA
241	LX-RZ3011GEFJ	C/S Washer	AA
242	XWHJZ25-04050	Washer W2.6-5-0.4	AA

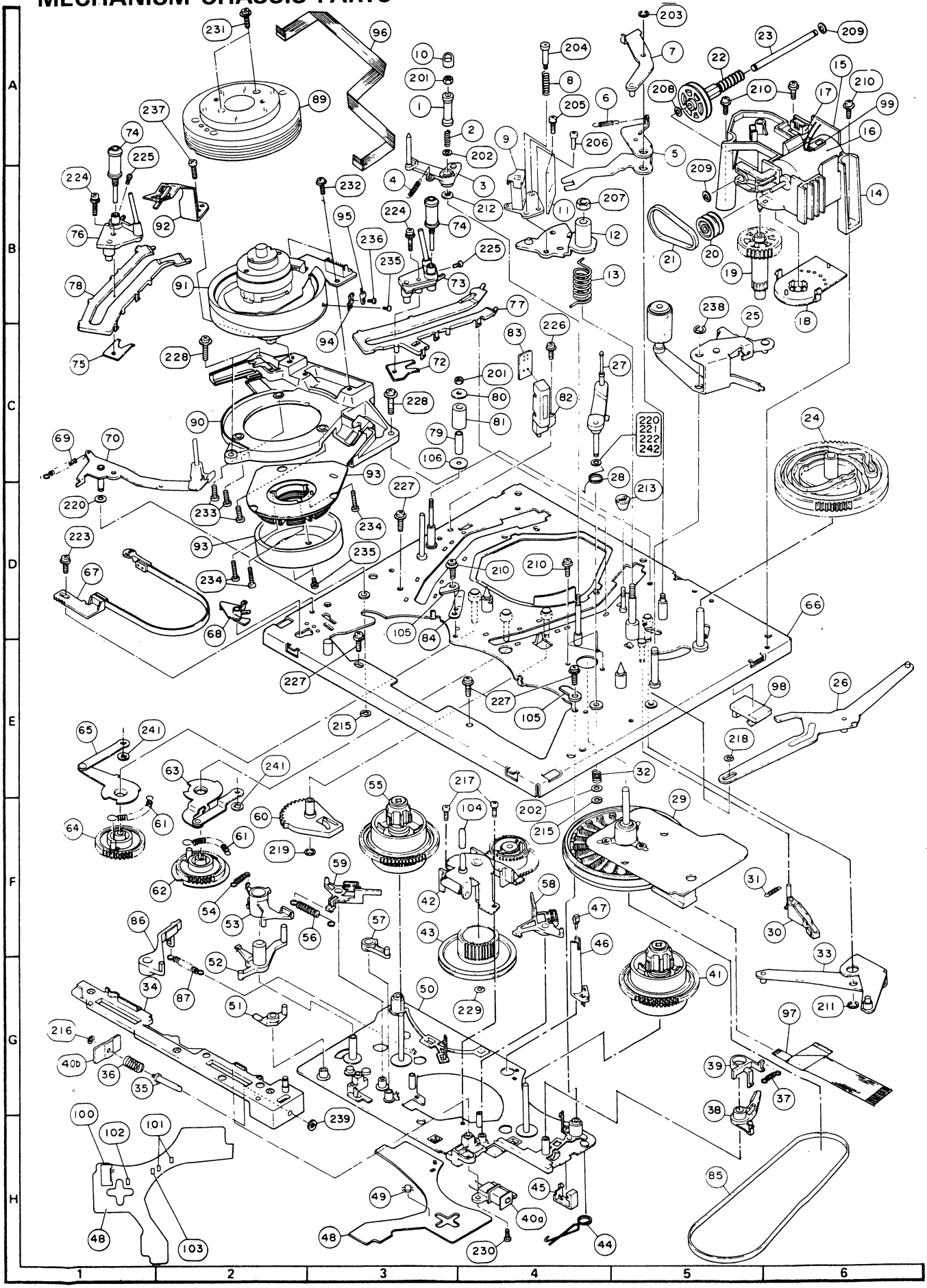
MECHANICAL PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
601	GCABB1079GEZZ	Main Frame	AR
602	GCABA3046GES3	Top Cabinet Ass'y	AR
603	GBDYU3052GEZZ	Bottom Plate	AG
604	GCōVA1512GEZZ	Antenna Terminal Cover (VC-A505W)	AE
604	GCoVA1514GEZZ	Antenna Terminal Cover (VC-B370N)	AE
607	LHLDZ1609GEZZ	Y/C Holder	AA
608	QEARP0276GEFW	Earth Plate, Upper	AA
609	MSPRC0145GEFJ	Spring, Power	AA
610	XEBSD30P12000	Screw	AA
611	XHPSD30P06WS0	Screw	AA
612	XEBSD40P12000	Screw	AA
614	LX-HZ3040GEFF	Screw, Top Cabinet	AA
615	LHLDP1013GE00	Power LED Holder	AB
617	LHLDZ1614GEZZ	Holder, Fluorescent Display Tube	AC
619	TLABM1686GEZZ	Model Label (VC-A505W)	AB
619	TLABM1684GEZZ	Model Label (VC-B370N)	AB
620	LHLDZ1624GEZZ	Holder	AC
621	PSPAZ0200GEZZ	Spacer	AA
622	PSPAZ0202GEZZ	Spacer	AC
623	LX-HZ3047GEFF	Screw	AA

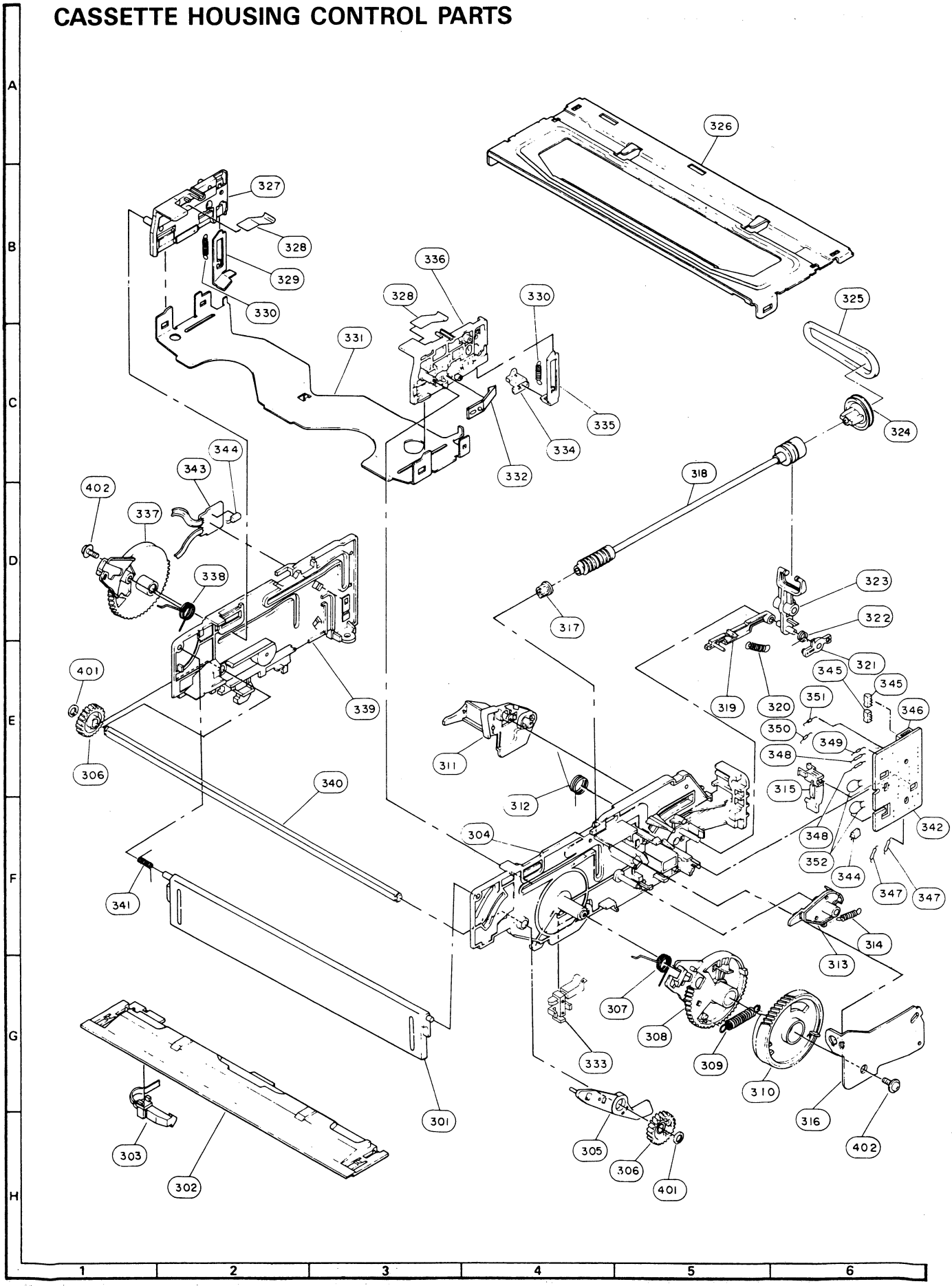
FRONT PANEL PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
501	CPNLC1546GE05	Front Panel Ass'y (VC-A505W)	BA
501	CPNLC1546GE06	Front Panel Ass'y (VC-B370N)	BA
501-1	HDECQ0539GESB	Front Decoration Cover	AN
501-2	JBTN-2227GESA	Button, Record	AA
501-3	QEARP0272GEFW	Earth	AC
501-4	PCōVU9135GESB	Display Filter	AF
501-5	LHLDS1010GEZZ	Door Latch	AA
501-6	Hi NDP1550GESA	Indication Plate, inside the door (VC-A505W)	AH
501-6	Hi NDP1524GESA	Indication Plate, inside the door (VC-B370N)	AH
501-7	GCōVA1425GEZZ	Cover, Remote Control	AC
501-8	JBTN-2237GESB	Button, Eject	AD
501-9	CBTN-2236GE02	Button Ass'y, Power	AE
501-9-1	JBTN-2236GESB	Button, Power	AD
501-9-2	GCōVA1522GESA	LED Cover	AD
501-10	LANGF9363GE00	Angle, Door	AE
501-11	GDōRF1551GESA	Door (VC-A505W)	AH
501-11	GDōRF1566GESA	Door (VC-B370N)	AH
501-12	HBDGB1001GESB	Badge "SHARP"	AD
501-13	TCAUH3179GEZZ	Dew Caution Label	AB
501-14	TLABH0420GEZZ	Tuning Label (VC-A505W)	AC
501-14	TLABH0419GEZZ	Tuning Label (VC-B370N)	AC
501-15	TLABZ0454GEZZ	Feature Label (VC-A505W)	AE
501-15	TLABZ0490GEZZ	Feature Label (VC-A370N)	AC

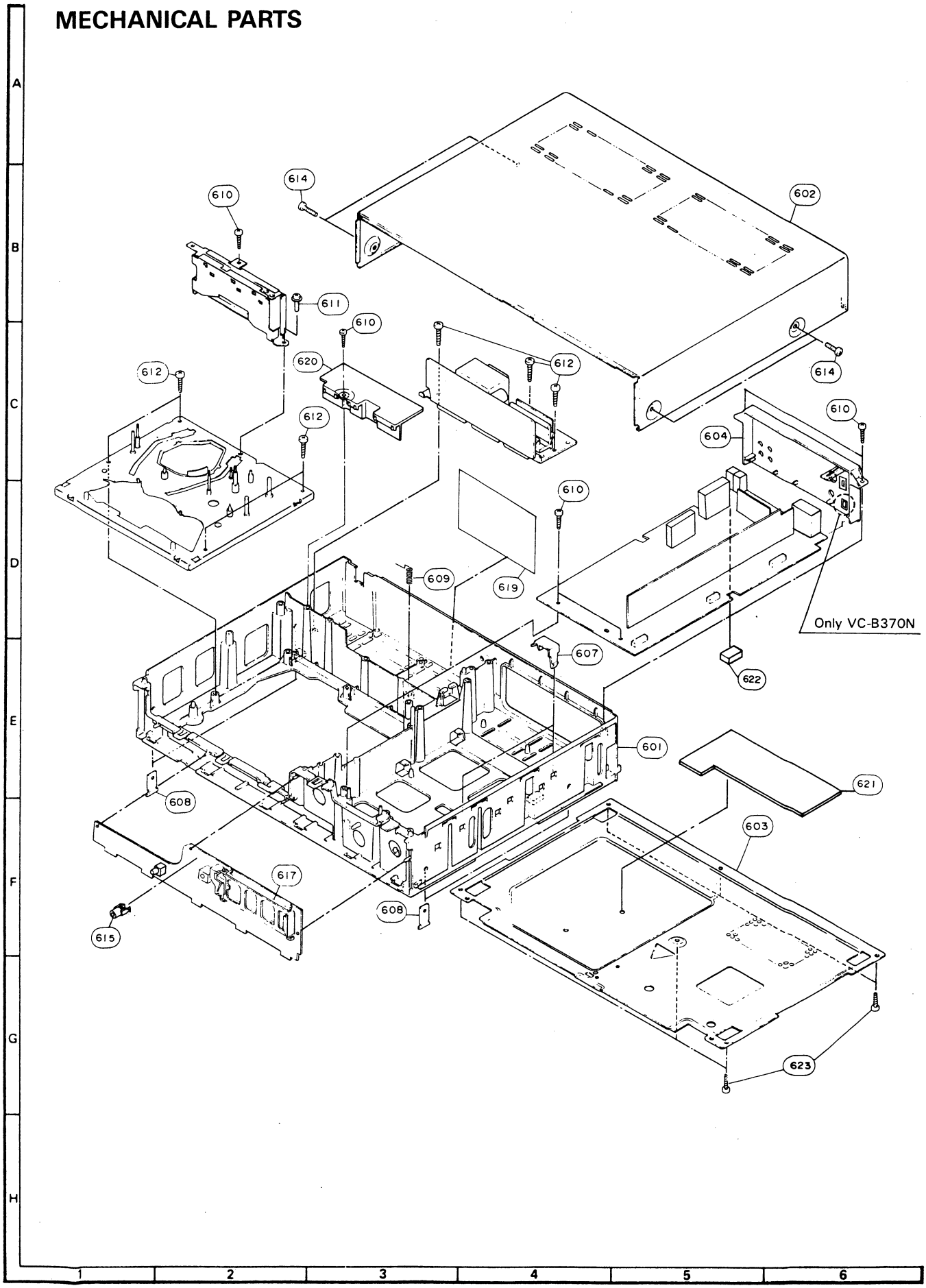
MECHANISM CHASSIS PARTS



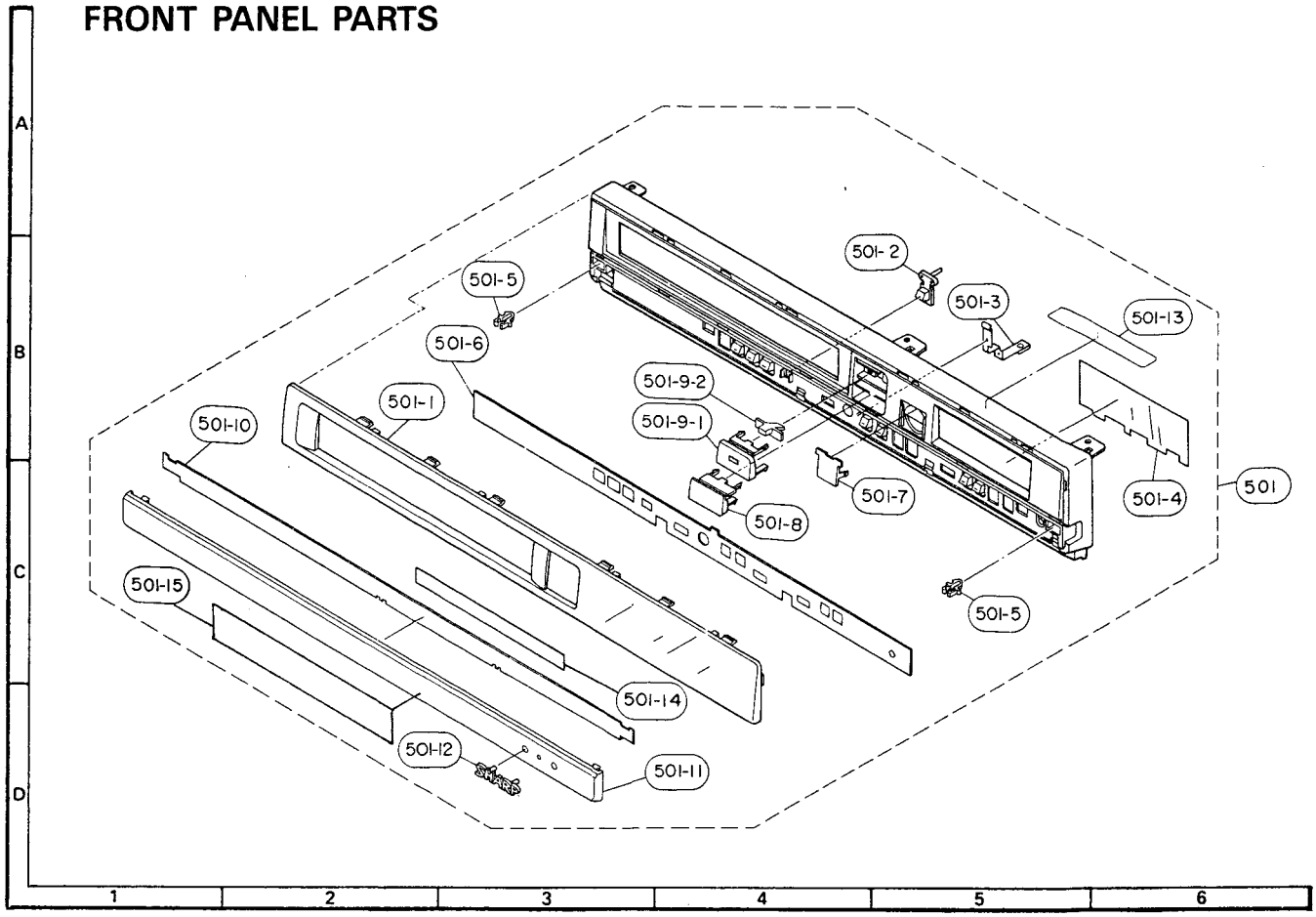
CASSETTE HOUSING CONTROL PARTS



MECHANICAL PARTS



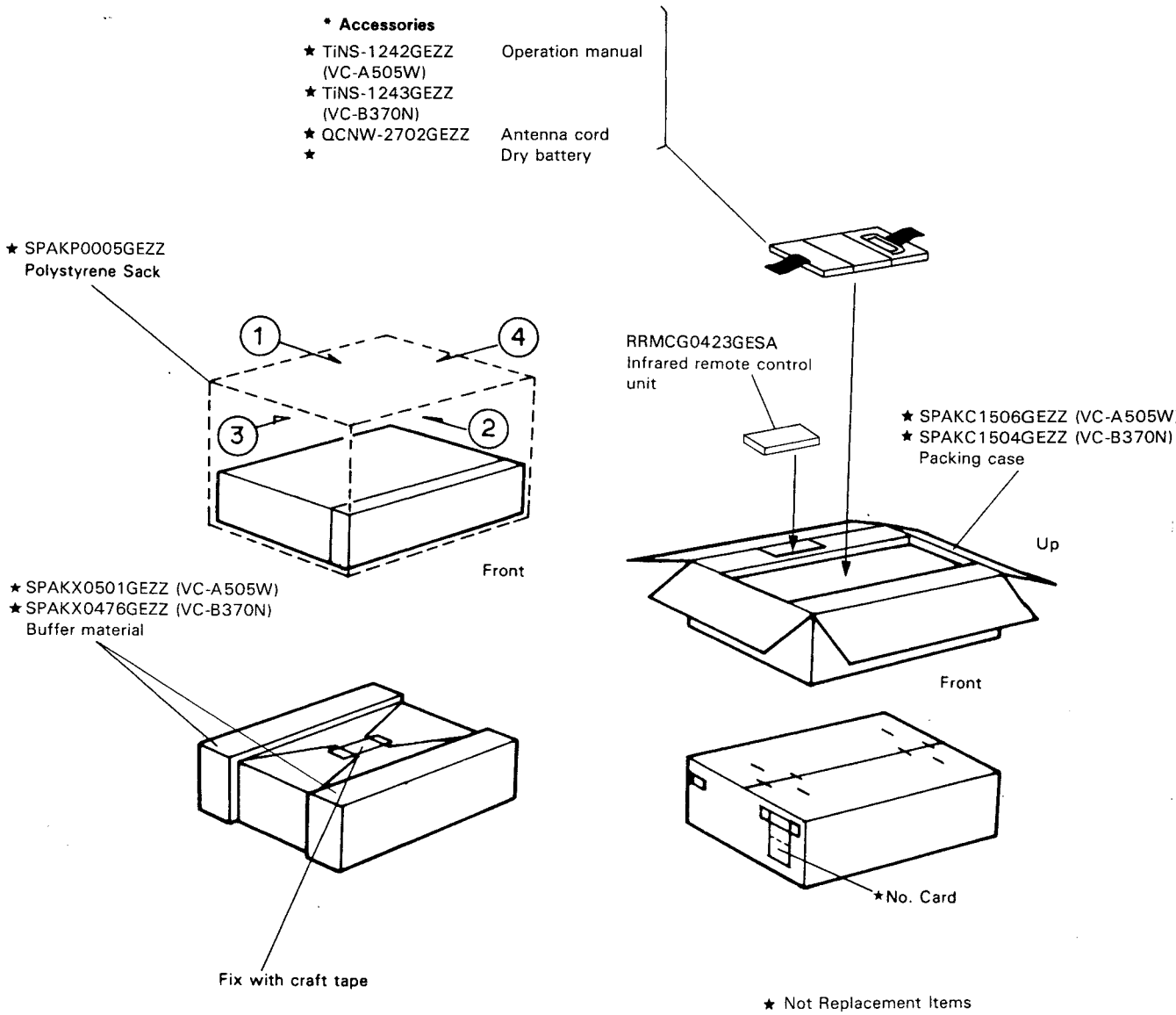
FRONT PANEL PARTS



PACKING OF THE SET

• Setting positions of the Knobs

Full auto	I position	Color mode	B & G MUTE (VC-A505W) Color (VC-B370N)
Picture tone	Center click	Band selector	Normal (VC-B370N)
RF converter	36 CH	Tuning	Normal (VC-A505W)
Test signal switch	off (VC-B370N)		



★ Not Replacement Items

T6622-S
Printed in Japan